Asking for senior intervention:

Conceptual insights into the judgement of risk by junior doctors

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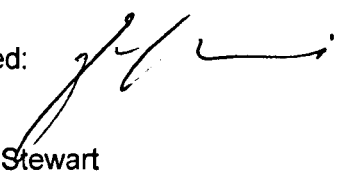
Signed: 

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This thesis is dedicated to my Father - a man who demonstrates in his actions an abundance of judgement and knowledge without reference to literature and a perception of 'risk' that is not shared by his family.

Foreword on writing style

The thesis in written in the 'first person', in concordance with the research approach adopted (Guba and Lincoln 2005).

To facilitate the reading of the thesis, the PRHO or clinician is referred to as 'he' or 'him'. When describing a specific PRHO the individual is referred to as male irrespective of his actual gender. This has been done to facilitate anonymity within the quotes.

Characteristic words or phrases used by individual pre-registration house officers, that might make them recognisable to a reader, have been removed from the quotations to further ensure anonymity. For this same reason the names of individuals and hospitals have been removed from the data. Otherwise quotes are verbatim accounts from the data.

Abstract

Drawing on a Grounded Theory approach, this interpretivist study explores the multiple influences on a pre-registration house officer's (PRHOs) response to a judgement call within a clinical setting. The study aim was to generate a conceptual understanding of judgement in a 'risky' situation and reflected this researcher's dissatisfaction with explanations in the medical literature about how clinicians think about 'risk' in practice.

In a phased approach to data collection (Phase One n=32, Phase Two n=21) semi-structured interviews were conducted with individual PRHOs. A third phase developed the emerging theory.

The PRHOs needed to recognise and weigh up, amongst a myriad of identified 'risks', those that had clinical relevance. One such judgement was whether or not to gain senior intervention. The factors mediating this judgement were: tenets that needed to be balanced to ensure safe practice within a training context ('act responsibly' and 'progress and develop') and estimating the chance and severity of potential consequences, not only to the patient, but to himself and the team. What was needed to make these judgements was knowledge of the patient's condition, one's ability to understand and manage the situation, and recognition of contextually meaningful cues. A perceived lack of knowledge or understanding was also influential.

The PRHOs' judgement of 'risk' was a dynamic process, akin to a heavily ornate mobile with interconnecting elements and exemplified by the need to create counterbalances between multiple consequences. No prescribed action could have allowed the PRHOs to deal with the multiple configurations that they faced and needed to take into account.

It is argued that judging whether it was appropriate to contact a senior, mirrored essential attributes for clinical practice: an independent yet co-operative and discerning practitioner who was able to balance multiple considerations whilst ensuring patient care. The PRHOs were practising what they needed to become.

CONTENTS

Chapter One – Introduction to the study

1.0 Introduction to the chapter

The following study explores a component of professional knowledge held by pre-registration house officers (PRHOs): the judgement of risk in a clinical context. The study began with an interest in how clinicians recognise some situations as 'risky' and others as unproblematic and with my dissatisfaction with the linear, menu-like approach described by decision or fault-trees which are so prevalent within medical literature but which do not relate to my own experiences of how clinical practice is performed.

This chapter is set out in the following sections:

1.1 An explanation of how this study arose;

1.2 An overview of the layout of this thesis and the contents of each chapter;

1.3 The context in which the study was conducted.

1.1 Study Origins

1.1.1 Observations of a Podiatry Tutor (1991-1996)

As a clinical tutor for final year podiatry students I knew that the unspoken criterion for deeming a student a safe practitioner was his awareness of, and appropriate management of, the 'at-risk' foot. The podiatry students' ability to recognise and manage the 'at-risk' foot was important but no time was given to this subject in the syllabus. Conditions associated with it were covered in depth but these explanations did not take into account that having a medical condition did not necessarily make the foot 'at-risk'. The 'at-risk' foot was a clinical phenomenon.

Some students did not appear to recognise the 'at-risk' foot and their management of these patients never altered from that of other 'non-risk' patients they treated. Other students recognised it but their management involved no treatment just in case this caused problems. Each of these scenarios raised issues and were viewed as undesirable by staff. As the staff could not describe the multiple schemas that represented the 'at-risk' foot, the students were never adequately informed of what they ought to pay attention to. It was difficult for the staff to teach explicitly because it was, for them, an intuitive and instinctive part of their practice and obvious when it

presented. The difficulty of pinning down what constituted the 'at-risk' foot became apparent when the course became an honours degree programme and a new curriculum needed to be written. I found I could not write criteria or design an examination that fully assessed this important judgement.

For most students, the exposure to 'at-risk' feet meant that by Easter of their final year they appeared to have conceptualised the problem(s). A minority did not but, as the final examination could not adequately assess it, they passed their examinations and went on to independent practice.

It was apparent that the 'at-risk' foot had significance for the staff and encapsulated myriad presentations that were potentially hazardous which students did not recognise until late (if at all) in their undergraduate training.

1.1.2 A new job, similar issues (1997-2001)
Whilst developing a self-evaluation instrument for PRHOs (Stewart *et al.* 1999) I investigated the meaning of the terms 'confidence' and 'competence' to see whether they were useful concepts for the scale (Stewart *et al.* 2000).

The study findings indicated that 'confidence' was important to PRHOs and was a factor that dictated whether or not they undertook a task. For example, the house officer may not have carried out the task before and therefore could not assess his perceived competence. Consequently he would assess how confident he felt about performing the task without causing significant detrimental effect by his intervention. The PRHOs were making critical decisions concerning their ability or lack of ability to perform tasks. These decisions governed the strategy they adopted when faced with the unknown and their feelings of uncertainty. I concluded that the PRHO's feelings of 'confidence' involved the assessment of 'acceptable risk'.

Although this study allowed the development of an appropriate scale it did not make clear what was being paid attention to in clinical situations; what was being judged important or not important; and what was being picked up on whilst other things were being dismissed or ignored. The question remained: what had constituted a risk for these PRHOs in their clinical context and how did they differentiate between those

situations that could be labelled as a risk and those that could not?

The ability to spot the 'at-risk' foot or being able to accurately assess a clinical situation as being a 'risk' appeared to have similarities that went beyond the use of the term 'risk'. Although one was focused on a part of the anatomy and the other on an activity, both were concerned with the clinician's recognition of that situation as problematic with potential repercussions if not recognised and dealt with appropriately. A podiatrist would see many feet per week. The PRHO would undertake multiple activities. Both practitioners needed to differentiate between situations that had the potential to be problematic and those that had not. This ability to recognise and differentiate situations as 'risky' was considered an important clinical judgement for clinicians but specifically for PRHOs because of the way that they worked and trained at the time of the study.

The following section describes the pre-registration year as it was structured when this study was conducted and explains why the judgement of 'risk' was viewed as a core activity for PRHOs. From August 2005, Foundation programmes will replace the system of training described here. The changes include a formal curriculum and assessments that were not part of the pre-registration year when this study was conceptualised or was being conducted. At the time of writing this thesis it is still unclear how much the Foundation programmes will differ on a day-to-day basis from previous pre-registration years.

1.1.3 Understanding pre-registration training

On successfully completing their medical degree, medical graduates are eligible for provisional registration by the General Medical Council (GMC). Provisional registration allows them to undertake the clinical duties of the 'pre-registration' year. It is part of their general clinical training and the final year of basic medical education. It has been a compulsory part of medical training since the early 1950s.

The pre-registration year represents a significant increase in a doctor's responsibility for patient care. The pre-registration house officer (PRHO) is the doctor on the ward and the first-line of medical care available to the nurses. Their job also involves enacting the decisions of more senior staff by either carrying out the job themselves or ensuring that the jobs are done for the consultant.

In every Deanery, the pre-registration year commences on the first Thursday of August and ends one year later. Those who fail their final exams or for other reasons cannot start in August do their pre-registration year from February to February.

Before the Foundation programmes were introduced, the pre-registration year needed to include at least four months experience within medicine and four months in surgery. These rotations allowed exposure, for those who were interested, in other rotations such as General Practice. However at the time of this study these chances were rare (Illing *et al.* 1999; Cantillon *et al.* 2000). The majority of PRHOs in all Deaneries joined a medicine or surgery job in August. In February those who had done medicine for the previous six months started in surgery and those who had done surgery moved to medicine.

At the time of the study, 'The New Doctor' document written by the GMC set out what should be achieved within the pre-registration year and the evidence that had to be collected to demonstrate that these aims were being met (GMC 1997). The pre-registration year had two stated purposes:

> 'To enable pre-registration house officers (PRHOs) to put into practice the key skills that they have learned and apply knowledge gained during undergraduate medical education' *and*
>
> 'To enable PRHOs to demonstrate that on completing general clinical training, they are ready to accept with confidence the duties and responsibilities of a fully registered doctor and to begin training for specialist medical practice'
>
> (GMC 1997, p.1)

The pre-registration year was concerned with junior doctors consolidating their learning from medical school predominantly through clinical experience. It did this by supplying the PRHO with training and supervision whilst the PRHO fulfilled a service role.

1.1.3.1 Training

In July the PRHO was provided with a 'shadowing course' to introduce them to their first job. This consisted of taught sessions within the medical school and one week of

shadowing exiting PRHOs at the hospital where they would be employed. This was designed so that the PRHOs became familiar with their role as well as with the administration systems and personnel before starting the job.

A one-day introductory programme was organised by each hospital for the first day of the August job. The programme involved sessions on emergency procedures, such as cardiac resuscitation, and often included hospital policy or procedures. The contents of these sessions varied because they were organised by individual hospitals.

Throughout the year PRHOs were involved in teaching sessions at their Trusts where 'topics of interest' were presented on a weekly basis. The GMC provided a list of what should be included in these sessions (GMC 1997). Topics could be selected by the PRHOs but it was more likely that topics considered important by senior staff were included. The sessions were pager or 'bleep' free to ensure that the PRHOs were exempt from their service commitment at that time. As part of their training the PRHOs were also involved in grand rounds (ward rounds that involved the consultant and his team of doctors, nurses and other professionals) and case conferences. These activities accounted for only a small proportion of the PRHOs' time. The majority of the training they received was on the ward.

Training for PRHOs was done through various grades of staff and professions. Dowling and Barrett (1991) recorded that nurses were important in PRHO initial training, with Senior House Officers (SHOs), then Specialist Registrars (SpRs) and finally Consultants having decreasing roles to play. Nurses had an important role within the first few months of the pre-registration period, as they worked closely with the PRHOs and would guide them in what they should do; for example, they helped them to prioritise duties and instructed them on how to perform certain activities.

PRHO training was thought to be more akin to an apprenticeship than formal training (Lowery 1993) and likely to be ad hoc and variable (Goldacre *et al.* 1997). As the GMC aims imply, much of the PRHO's learning was not through training but through personal experience.

1.1.3.2 Experience

The clinical experiences of the PRHO were known to be variable. There was specific mention in the literature about differences between teaching and general hospital jobs and between medicine and surgery.

A study on 'Doctors and their Careers' (Allen 1994) detailed the differences in experience between jobs in teaching hospitals and those in general hospitals. In teaching hospitals, PRHOs were reported as likely to see rare and unusual conditions but it was unlikely that they would achieve 'hands-on' encounters with these cases as staff on more senior grades would take precedence over them. In the general hospitals, the PRHO had exposure to 'ordinary' cases and were actively involved in all aspects of care.

For some in Allen's study, general hospital jobs were thought to offer better training and a broader experience but there was a perceived need for those who sought an 'academic' career to do some of their training in teaching hospitals. Gaining professional associations with people who could influence their career was, in their case, more important than gaining a broader experience. Firth-Cozen recorded 'junior' house officers as being significantly more stressed and more depressed in teaching hospitals than those in non-teaching hospitals (Firth-Cozens 1987). Dent *et al.* (1990) found differences in workload between the two, with PRHOs in teaching hospitals less 'clinically active' and believing that their educational input was less satisfactory.

As well as the reported differences between teaching and non-teaching hospitals there were also reported differences of experience between the house surgeon and house physician jobs with the house surgeon receiving less supervision, support and training (Dowling and Barrett 1991; Goldacre *et al.* 2003).

Variability in supervision was also acknowledged.

1.1.3.3 Supervision

Both formal and informal mechanisms for supervising PRHOs were described.

Prior to the 'New Doctor', PRHOs had clinical supervisors providing day-to-day support

and guidance but their role was said to be less 'strategic' than that of the educational supervisor (Challis *et al.* 1998). With the new regulations each PRHO had to have a named educational supervisor, a consultant who was formally recognised as being responsible for the training and development of a specific PRHO. The regulations stipulated that the educational supervisor and their PRHO(s) should meet at regular intervals to analyse performance and to set and review educational objectives.

These represented the formal systems for supervising PRHOs. The informal mechanisms for supervising them were less explicit but a taken-for-granted part of the culture.

The PRHO on duty needed to have a more senior member of staff available to provide cover so that he always had someone to call upon. However, in their working day, the PRHOs could be attached to a number of wards and were therefore not fixed to one particular place or group of people. Senior nursing staff often provided much of the supervision and support in such instances (Lowry 1993).

A PRHO needing assistance had to bleep the next more senior doctor on duty who would then, if necessary, call the next more senior member of staff. This meant that when the PRHO needed help or assistance from another doctor, they needed to ask for it. PRHOs were working relatively independently, with the onus placed on them to 'be aware of their own limitations and readily seek help when necessary' (GMC 1997 p.6, item 14h). These work practices meant that the PRHO needed to work out when they required supervision.

Difficulties with this system of working and accessing supervision are evidenced in the 'The Doctors' Tale Continued' (Audit Commission 1996). Here, one in five PRHOs stated that within the previous week they had performed tasks that were 'beyond their competence' and the help they received via instruction and supervision was considered inadequate by half of the group. The authors concluded that 'Trusts need to develop delegation and supervision schemes as part of their risk management and training strategies in order to ensure greater consistency in supervision and to minimise those occasions when supervision or back up is inadequate' (1996, p.26). In Goldacre's study of PRHOs in 1999 and 2000 one-third had experienced difficulty gaining help

from a senior (Goldacre *et al.* 2003).

1.1.3.4 Hours and conditions of work

At the end of the 1980s and the beginning of the 1990s, concerns were raised about the number of hours and the 'inappropriate' duties PRHOs were reportedly performing (Dowling and Barrett 1991; CDMS 1993; COPMED 1993; Gilliard *et al.* 1993). In the article 'Emotional distress in junior house officers' Firth-Cozens (1987) reported 'emotional disturbance' in 50% of her sample and 28% showed evidence of depression. The analysis of the data demonstrated that being overworked was the most stressful part of the job, followed by talking to distressed relatives, effects on their personal life and serious treatment failures. Stress and depression scores were highly correlated to 'relations with consultant', 'effects on personal life', 'overwork' and 'making decisions' but were not influenced by the number of hours they had worked (the mean number of hours being 90.6 for that week). Women were more likely to report signs of depression than stress.

The 'New Deal' was agreed in June 1991 and designed to address some of these issues (NHSME 1991). It set down governmental regulations on the work patterns and conditions for doctors in training, and set standards on hours, work intensity, nature of work, food and accommodation. PRHOs were to work no more than 56 hours per week although non-contact hours at the hospital would not count towards this total. Task Forces were set up to ensure that the New Deal was being implemented and one of its main functions was to check that the hours junior staff worked were within reasonable limits. A survey by Goldacre *et al.* found that graduates from 2000 were happier with the remuneration they received than were graduates from 1999, but dissatisfaction existed in both cohorts with other work conditions such as food, accommodation and clinical cover (Goldacre *et al.* 2003).

In 1995 there were reports of significantly lower levels of job satisfaction and significantly higher levels of mental ill health and physical ill health in pre-registration house officers than in non-health care-workers (Grainger *et al.* 1995). In a letter to senior NHS staff and Postgraduate Deans, Hugh Taylor, Director of Human Resources at the NHS Executive reported that at the end of March 1999, non-compliance with 'New Deal' hours of duty stood at 44% for PRHOs and at 28% for all doctors (Taylor

2000). Others reported that because the hours were reduced, the work needed to be carried out within a shorter working day (Goldacre *et al.* 1997). This is somewhat ironic when Firth-Cozen's findings stated that overwork was the most stressful part of the job and stress was not correlated to the number of hours worked.

It is not difficult to see why Harden (1997) described the pre-registration year as, 'a deplorable education experience' (p.61) and why the term 'risk' appeared applicable.

1.1.4 The significance of 'risk' to the pre-registration year

Rosenthal (1995) identifies seven 'overarching' themes that describe medical practice, one of which is the 'permanent uncertainty' in which a doctor works. This led her to suggest that 'much of medical practice is uncertain and filled with risks' (p.16). Rosenthal noted that when doctors reflect on mistakes or accidents in their own practice, they stressed the uncertainty, the multitude of causal factors out of their control, the existence of 'known risks' and the acceptable differences which exist between doctors' work practices. This, she concluded, explains their use of the term 'adverse event' rather than 'accident' or 'mistake' to describe things that go wrong.

With so much uncertainty within the practice of medicine, it is unsurprising that those new to the profession should feel particularly vulnerable and why, for them, without the insights of experience to the "known risks", the ability to appreciate and manage uncertainty is especially difficult. These challenges were thought to be particularly problematic for the PRHOs because of the way in which their work was organised. It was the PRHO who, if working on the ward alone, needed to spot when things were going awry so that potentially disastrous situations could be prevented. Although the pre-registration year was in some state of flux at the beginning of the study because of the New Deal, the literature pertaining to the pre-registration year prior to the year 2000, demonstrated its difficulties, stresses and fraught nature.

Higgs (1994) suggests that in order to deal with the stress and depression more common in doctors than in similar professional groups, several strategic areas need to be addressed. These include, regular reflection time for learners, supervision for clinicians at all stages, appropriate confidential professional help for those in distress and practical organisational improvements. However, Higgs argues, as does Rosenthal

(1995), that the main thrust of any strategy has to be the proper anticipation of 'risk'.

1.1.4.1 What is 'risk'?

Although medicine has always been by its nature hazardous and uncertain, there has been an increased engagement with the term 'risk' over the last 25 years: a search on Medline indicated how significant the term has become in the biomedical sciences. Between January 1980 and January 1984 there were 13 articles published with 'risk' as a key word. From 1985 to1989 the number of articles using this term increased to 482 but from 1990 until 1994 there were 37,986 articles concerned with 'risk'. This signifies a significant increase in the usage of the term which continued between 1995 and 1999 to 165,473. From January 2000 to December 2004 a staggering 255,291 papers used 'risk' as a key word. The increased engagement with risk as a concept may reflect what the term has now come to signify:

> 'plain danger does not have the aura of science or afford the pretension of a possible precise calculation'.
>
> (Douglas 1994, p.25)

It was felt that if the assessment of 'the risk' was the means by which the PRHO regulated their input into clinical practice, understanding their perceptions of what constituted 'risk' could help in understanding how they conceptualised and managed uncertainty in the workplace. As accurate situational understanding appeared crucial for the system in which they worked and trained, understanding the mediating factors that the PRHO attend to in such instances would give insight into this very complex initiation into medical practice.

It became clear from provisional literature searches that I could not assume that my conceptualisation of 'risk' was the same as that of the medical professions or pre-registration house officers. From this reading I also became aware that what I wished to capture in this study might not be expressed adequately by this single and probably overused term.

1.1.5 Study aims and research question

Thus, this study started with a single aim: to generate a conceptual understanding of

clinical judgement in a 'risky' situation. The research question was developed early in Phase Two and arose from engagement with Phase One data. The research question for this study is:

What influences a PRHO's response to a judgement call within a clinical setting and what, if any, are the relationships between these influences?

The 'judgement call' referred to in the research question was one where the PRHO labelled a situation as a 'risk'.

1.2 Thesis structure and presentation

The thesis is divided into eight chapters and follows a traditional pattern of literature review, methodology, findings and discussion chapters.

1.2.1 The literature review:

The literature review is contained within two chapters (Chapters Two and Three). The first is concerned with risk literature and the second with literature on professional practice. These two sets of literature were perceived to be relevant to PRHOs making judgement calls about risk in the clinical setting and were thought important in creating theoretical sensitivity to aid the study development (Glaser and Strauss 1999).

Chapter Two explains my conceptual engagement with the term via the literature. The importance this engagement had on the study design is explained. The amount of literature on the subject of risk is vast and is not comprehensively described, but literature considered pertinent to the study is analysed in more detail.

The second literature review (Chapter Three) on professional practice covers three areas: professional knowledge, learning, and clinical practice. The review draws largely from the conceptual work of Michael Eraut whose work represents the most coherent theoretical and empirical explanation of training and learning within the professions. The review also covers the socio-cultural perspectives which, at the time of the study, were less evident in medical education literature than cognitive perspectives. How this literature impacted on the design of the study is also described.

1.2.2 The methodology chapter:

The methodology chapter (Chapter Four) explains the approach adopted at the beginning of the study as well as how this developed as the study progressed and greater insight was gained regarding the study phenomenon. These developments are also related to my academic development.

The chapter is split into two sections (4.1 and 4.2). The first deals with the study development and includes sections on the early decisions taken, my epistemological and theoretical positioning within the study, and a rationale for the study approach. This final part also includes research strategies that were considered and the reasons why some were rejected in favour of others.

In the second section of Chapter Four a description is given as to how the study was conducted and why these decisions were made with regard to the process. This includes decisions on the method, sampling and data collection procedures. The weaknesses and strengths of the study are discussed.

1.2.3 The findings chapters:

There are two chapters relating to the findings of the study (Chapters Five and Six). The first describes Phase One data which was collected to gain a greater appreciation of the term 'risk' as it was used by the PRHOs to describe their clinical work. This was done so that the study could be refined and a focus decided upon. The analysis stage of this phase not only created direction for the next phase of the study but also influenced my theoretical stance. These progressions are explained.

The second findings chapter describes the data from Phase Two and addresses the first part of the research question: what influences a PRHO's response to a judgement call within a clinical setting?

1.2.4 The discussion chapter

This chapter (Chapter Seven) is split into three sections (7.2, 7.3 and 7.4). The first section discusses the findings in relation to the reviewed literature, the second section focuses on the key findings from the study and the final section describes the changes to the pre-registration year at the time of writing this thesis. These changes, via the

introduction of Foundation programmes, will have a significant effect on how the pre-registration year is organised and managed. The implications of the study findings to these initiatives are discussed.

1.2.5 The concluding chapter

Chapter Eight describes some of the practical applications for the study findings. It also gives tentative recommendations to the professional groups who have responsibility for doctors in their first postgraduate year. The recommendations are only tentative because of the significant modifications to postgraduate training, which were taking place at the time of writing this thesis.

Recommendations for future research are also presented.

1.3 Context in which the study was conducted

This study began in Easter 2000. I was in contact with PRHOs from April to July in 2001, April to July in 2002 and May to July in 2003. Presentations of the data to medical educationalists continued until July 2004.

Over this period of time there were negative accounts of the medical profession in the media. Amongst these were several high profile cases which had a significant impact on the profession (Walshe and Higgins 2002). In 2000 the gynaecologist Rodney Ledward and Alder Hey Hospital were under investigation. In 2001 the cardiologists at Bristol Royal Infirmary were being investigated as was the general practitioner Harold Shipman. These specific cases continued to attract press attention over the study period.

It is difficult to state whether these events influenced the PRHO's responses in the data collection periods. It is interesting to note however that only one PRHO made any reference to these cases.

> May 2001 - 'And it just seemed like every night you kind of went in – there would be someone who would go off or someone who would die or there would be an arrest. They were calling me Dr Shipman and things like that.. (E19:647-650)

The story was told in an amusing way and the PRHO did not appear offended by the joke at his expense.

In only one interview (May 2001) was the PRHO suspicious of my motives as researcher and questioned the need to audio-tape the interview. The interview was conducted but the responses appeared guarded. One other PRHO refused to be interviewed but the reason given related to pressure of work rather than concerns over the study.

On the whole, I felt that the PRHOs were open and honest about their feelings and experiences and certainly individuals described negative stories about medicine and training as well as positive experiences. What was surprising, considering the negative reports in the media, was how readily the PRHOs agreed to speak to me.

The study therefore took place at a time of increased media attention towards the profession which was caused by high profile cases. The structure of the pre-registration year was still the traditional two six month slots in either medicine or surgery but there was a small group of individuals experiencing three four month placements. The New Deal, brought in to instigate change in the working patterns and work conditions of doctors, was having an effect. Whilst data was being collected compliance for PRHOs with the New Deal was 40.7% in March 2001, 99.8% in March 2002 and 100% in March 2003 (DoH 2004). These compliance rates capture statistics for the Northern and Yorkshire regions 2001 to 2002 and the Northern region only for 2003. Established on-call rotas were being replaced by shift systems which were more likely to comply with the New Deal in terms of hours worked per week and with rest periods during continuous duty.

When the study started, the Foundation Programme, which will be fully implemented by August 2005, was not anticipated.

Chapter Two - Themes and theoretical perspectives in the risk literature

2.0 Introduction and starting point

In the following chapter a selection of the literature on risk is explored. This literature was perceived as pertinent to review because the study began with my interest in how clinicians make judgements about risk in clinical situations.

From attending a one-day workshop entitled 'Health, Risk and Society' at Northumbria University in July 1999, it was clear that my use of the term was different from that of other attendees. Presentations were concerned with risk-trees, algorithms and the calculation of statistical probabilities and appeared to imply that this was how clinicians ought to work. Although, at the time, my own thoughts on risk were somewhat fuzzy, fault or risk-trees and statistical calculations were not, from my own experiences, how clinicians actually made judgements during practice. Discussions with other delegates indicated that risk had a definite and shared meaning to them and one which I did not adhere to or understand. It therefore seemed pertinent to start the study by gaining a greater understanding of the term 'risk' and clarifying what 'risk' meant in the context of this study.

The literature on the subject of risk is extensive and the following review is not presented here as a definitive account. The majority of the literature considered in this chapter has not been critically appraised in terms of methodological rigour nor has a great deal of attention been given to the study findings. What I gained from my initial engagement with this literature was the existence of multiple perspectives on risk.

The chapter explains and illustrates my engagement with the notion of risk and also maps my understanding of it as it relates to the phenomenon under study. The chapter therefore gives an account of my theoretical sensitisation to the term (Glaser and Strauss 1999). This is done by explaining insights into the various perspectives on risk found through its multiple definitions, by considering different paradigm stances and the way the term is used in the literature by medicine and other disciplines. The literature on 'risk perception' and 'risk assessment' was considered particularly pertinent to the study and therefore these sets of literature are discussed in more detail.

2.0.1 Understanding the nature of risk through definition

The Collins 'New' English dictionary (Collins 1997, p.668) states that as a noun, risk is 'the possibility of bringing about misfortune or loss' and 'a person or thing considered as a potential hazard'. It also states that 'at risk' means to be in a dangerous situation. To take, or run a risk is, 'to act without regard to the dangers involved'. As a verb, risk becomes, 'to act in spite of the probability of (injury or loss)' or 'to expose to danger or loss'.

These definitions from a single text only allude to the complexity and variability within the literature on the nature of risk.

Lupton's analysis of risk and its usage over the centuries gives insight into the differences that exist with regard to the term (Lupton 1999). In the Middle Ages the term risk was restricted to events that were due to natural phenomena and not caused by man. With industrialisation in Europe and America the term became bound by rationality and objectivity as a calculable phenomenon which was predictable and controllable. By the 19th Century risk had shifted from relating to natural phenomena towards man-made ones and by the end of the 20th Century risk was synonymous with uncertainty and inevitably 'a bad thing'. This shift marked a move away from risk being perceived as controllable and towards it being a global issue; no longer limited and manageable but so large that people were unable to have any input into its control. Lupton argues that each historical usage of the term has currency today. This partly explains why there are no commonly accepted definitions for it.

Some authors offer more considered definitions than those found in dictionaries.

Vlek (1996) states that all definitions allude to potential negative consequences stemming from an act or situation. For Renn the term risk relates to what is possible rather than to what is 'real'.

> 'risk is often associated with the possibility that an undesirable state of reality (adverse effects) may occur as a result of natural events or human activities'
>
> (Renn 1998, p.51)

For Renn, one person's interpretation of an adverse effect or undesirable state may not necessarily be shared with others and he challenges the notion of 'real risks'. Within Renn's perspective, risk becomes defined as 'the possibility that human actions or events lead to consequences that have an impact on what humans' value' (p. 51). The labelling of an activity or incident as 'risky' indicates the values of its definer. This explains many of the different stances in the literature, not only between individuals but also between disciplines and institutions.

This labelling process is apparent in Kenneth Calman's paper (2001) where he draws a distinction between the 'real risks' and those 'overstated by the media' and in doing so, indicates the importance in medicine of differentiating risks that are tangible, dimensional, objective entities from those that are basically derived from fear. More interestingly, Calman differentiates 'relative risk' from 'absolute risk' without clearly differentiating these terms to his audience. Perhaps the assumption here is that because his paper is written for doctors, they have a shared knowledge and usage of these terms and therefore no further explanation is required. Calman does differentiate 'hazards' from 'risk', where 'hazards' are 'a set of circumstances that may have some harmful consequences' whilst 'risk' is 'the probability of the hazard causing such effect' (2001 p.48). All Calman's definitions hint at the 'medical perspective' on risk which will be discussed more fully later (see page 28).

Gigerenzer's (2003) definition of risk relates to uncertainty and in that he includes both positive and negative consequences. For Gigerenzer, the term 'risk' only refers to uncertainty that can be articulated as a numerical value. In a situation where a numerical value is not applicable or acceptable, 'uncertainty' is the appropriate term.

Sjoberg (1998) distinguishes between 'worry' and 'risk'. Whilst 'worry' applies to an emotional reaction, 'risk' is considered to be more of an intellectual judgement. Although risk and worry can be strongly correlated, he suggests that they need not be as 'emotions have their own character and dynamics which cannot be understood in the same way that one understands intellectual judgements' (p.91). Risk for Sjoberg is therefore intellectual rather than affective. Fischer *et al.* (1991) also differentiate 'worry' from 'risk'. They suggest that the perception of 'risk' relates to a negative event that might not occur but 'worry' refers to a negative state of affairs that could already exist.

Also, whilst with 'risk' the potential likelihood of the threats being realised are dependent upon the decision-makers own actions, people often 'worry' about things that they cannot influence. 'Risk' for Fischer *et al.* is therefore the potential for negative outcome but ultimately an outcome under the definer's control.

In terms of developing the study, it was clear from the variability in the above, that an understanding of 'risk' was not going to be gained from simply reviewing definitions. If definitions are affected by historical positioning, custom and practice as well as the values of the definer, there cannot be only one definition of risk. What may have been observed at the Northumbria University risk workshop were particular views or perspectives on risk that I did not share.

In the next section the different ontological and epistemological positions of risk are considered. These explain how disciplines differ in their perspectives.

2.1 Different ways of viewing risk

The Royal Society (1992) defines risk as:

> 'The probability that a particular adverse event occurs during a stated period of time, or results from a particular challenge. As a probability in the sense of statistical theory, risk obeys all the formal laws of combining probabilities. Explicitly or implicitly, it must always relate to the risk of (a specific event or set of events) and where appropriate must refer to an exposure to hazard specified in terms of its amount or intensity, time of starting or duration. All risks are conditional, although often the conditions are implied by context rather than explicitly stated.' (1992, pp.2-3)

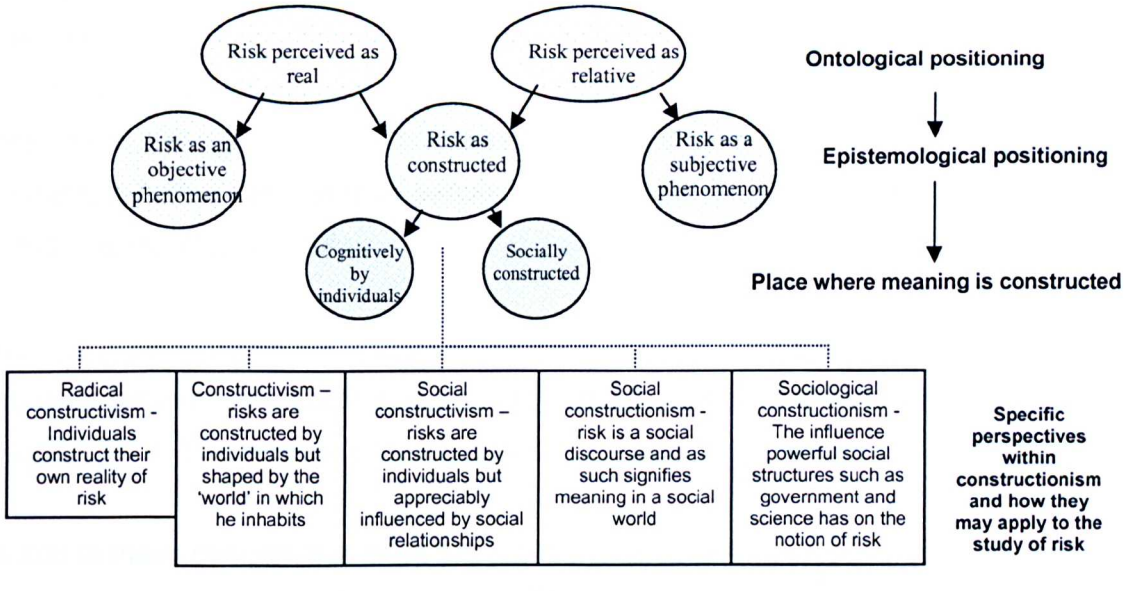
This view suggests 'risk' is a concept; it has definable and recognisable features that make the 'risk' label an appropriate one to apply.

In order to agree with this perspective, one must believe that risks are real and exist as an objective phenomenon independent of people's conception of it. This stance is illustrated in Figure 1 by the two left hand circles (top and second row). From this perspective risk can be tangible, uni-dimensional, stable and predictable under

specified circumstances and potentially measurable. It can be broken down into at least interval units (a necessary requirement to make it measurable) and essentially, adheres to the principles of the scientific paradigm. Only an expert or scientist has the objectivity and knowledge to identify and calculate risk. The lay person, who has no specialised knowledge, can only have 'unscientific' insights into risk which are subjective, unreliable and consequentially less valid. Whilst the experts "know" what the real risks are, lay people are likely to be swayed by public opinion, by what they read and by personal experiences.

Slovic (1998) notes that the findings of many studies support the idea that experts are objective, analytic, wise and rational individuals and focus on 'real risks', whilst the public are 'subjective', often 'hypothetical', 'emotional', 'foolish' and 'irrational' (p.73). He, however, argues that there is evidence that the public have a broad and complex conception of risk whilst experts have a limited notion of it and tend to view it in terms of expected mortality and other outcome measures.

Figure 1. Schematic representation of the ways of viewing risk



Constructed from several sources: Gergen 1999, Lupton 1999 and Crotty 1998

If this is true, it is unsurprising that the results of the studies referred to by Slovic show experts and lay people differing. But as Jasanoff (1998) asks, 'Who, for instance, are lay-people, what distinguishes them from technical experts?' (p.91). Her questions reflect the poor conceptualisation of these terms within studies.

But can 'risk' be seen as existing independently of people, especially if one supports the notion that 'risk' is actually an expression of what an individual or a culture values?

A related perspective to 'risk' as a real and objective phenomenon is that 'risks' are real but how sense is made of these dangers, hazards, uncertainties etc, and ultimately how they are managed, is a product of cognitive construction (Figure 1- left hand circle of top row and middle circle of second row). From this stance, lay people and experts know of the risks that exist but conceptualise and make sense of them differently. Experts are likely to share their conceptualisations.

For some constructionists, risks are viewed as purely relativistic (right-hand circle in the first row and middle circle in the second row of Figure 1). From this perspective risk is not palpable or tangible but a label projected onto a situation or event by individuals or applied collectively by groups. Risk conceptually becomes inherently multi-dimensional, meaning different things within different contexts and a product of interpretation, judgement and evaluative processes. Here, risk is relative and constructed and merely a label to express danger, harm, uncertainty etc. From this perspective both experts and lay people construct what is known to be a risk only experts do so collaboratively.

The final position within the relativistic stance is one that denies the existence of risk and sees the term only existing as a social, cultural, political and historical artefact (Lupton 1999). This position is demonstrated in Figure 1 as relativist and subjective.

To add to these complexities there are a number of different perspectives within the constructionist framework (Gergen 1999). These go further than just differentiating between knowledge created by the individual or by groups and are presented in the bottom row of Figure 1. Although not overtly described in the risk literature, the classifications presented here do give insight into the many ways that risk could be

constructed and therefore captured in a study. For example, risk is viewed as being constructed in the mind of an individual and represents their reality of it. Risk is constructed in the mind of an individual but this construction is shaped by their experiences and environment. An individual's understanding of risk is influenced by social relationships, although sense of this is constructed by the individual. Risk is a label that has significance within particular social settings. Risk is a macro-sociological issue, where institutions like government and science affect what it is and what it becomes. All of these are concerned with the construction of risk but illustrate the different ways in which its' meaning is derived.

Lupton (1999) describes 'weak' and 'strong' perspectives of 'social construction' (terms not used by Gergen). Those from a 'weak' social constructionist perspective see dangers and hazards as 'facts' or real (or at least talk about it in these terms) but these 'real risks' are influenced by social, cultural and political processes. This is perhaps analogous with Gergen's social constructivism. For those holding a 'strong' social constructionist view, 'risk' is unbounded and can be anything it is perceived to be. There is, for the 'strong' social constructionist, no such thing as 'real risk' because the process of labelling an incident or activity as such is in itself a construction. This corresponds to Gergen's social constructionism.

The above suggests that for some, 'risk' is a concrete entity that has definable features and elements that distinguishes it from non-risks. For others it is merely a label that signifies meaning to its constructors. In between these are a number of combinations of realist and relativist perspectives which describe and explain the multiple perspectives within the literature.

2.1.1 Macro-sociological perspectives

The major sociological writers on risk represent macro-social perspectives although each has a different focus: Mary Douglas (cultural/symbolic perspective), Ulrick Beck and Anthony Giddens ('Risk Society' perspective) and Michael Foucault ('Governmentality' perspective). Their perspectives are explained by Lupton:

> 'They see risk as having become a central cultural and political concept by which individuals, social groups and institutions are organised, monitored and regulated.'
>
> (Lupton 1999, p.25)

Chaplan describes the similarities between the work of Beck and Giddens (Chaplan 2000). Both theorists view the current rise of 'risk issues' as a product of the demise of religion and other social structures and the rise in the culture of the individual. As individuals, people now face global risks over which they have little control or must trust others to manage, whilst also knowing that the decisions made today will have implications for future generations.

Becks and Giddens are not referred to again in this review as viewing risk as a global issue was considered too extensive a perspective to take when considering how PRHOs judge a clinical situation to be 'risky'. Foucault is also not included for similar reasons, although it is acknowledged that wider social forces may impact on PRHO judgement and therefore have indirect relevance to this study.

One of the key writers on the subject of risk as a socially and culturally mediated phenomenon is the anthropologist, Mary Douglas. Her work was considered relevant as it gives insight into how institutions and cultures affect the conceptualisation of risk. Although her early empirical work is drawn from the analysis of 'primitive' cultures or small-scale social structures, her deliberations are applied to more 'advanced' cultures.

Douglas and Wildavsky (1983) challenge the notion of people using sophisticated calculations for making risk decisions or in dealing with defined units of risk one at a time. They view this as over intellectualizing risk and suggest that actually peoples' 'first and fundamental choices are personal, moral, and political' (p.82). They also argue that 'risks' are continually being refined, altered and developed.

'Risk', for Douglas is about looking forward, a means of thinking about the dangers in the future and, therefore, is predictive. Drawing upon her work on sin and taboo, she sees the discourses of sin and risk as comparable, with sin also being concerned with the future – 'a predictor of trouble' (Douglas 1994, p.29). Sins are known within a

culture as are the risks, with each evoking a moral reaction from others if one engages in behaviours that are recognised as risky or sinful. To undertake such behaviours leads to 'blame' and 'being at risk' equates to 'being sinned against' (1994, p.19). In this way 'blame' acts as a means of control.

Rather than looking at risk from the individual's perspective therefore, Douglas believes that 'risk' studies should focus on the institutions surrounding the individual because it is their attempts to comply with the institutional structure that influences their decisions. This is not to suggest that there are no real dangers or threats, only that an individual's view of risk is framed within a social and cultural context.

> 'Culture would seem to be the coding principle by which hazards are recognised. The cultural standards of what constitute appropriate and improper risks emerge as part of the assignment of responsibility'
>
> (Douglas 1986, p.68)

Douglas defines culture as, 'the publicly shared collection of principles and values used at any one time to justify behaviour' (1986, p.67). Her cultural theory is a means of considering culture and the social environment when trying to understand the choices that individuals make. What emerges from a culture are shared patterns of 'who or what is to blame' or 'what are the risks and why'. These are reinforced by the social structures embedded within the culture and maintained through continual dialogue between its members. The assumption inherent within cultural theory is that individuals are accountable to one another and therefore when new situations present, an individual needs to calculate the implications of his actions within this cultural scheme. Douglas and Wildavsky see an individual who spends his or her life in a particular institution as taking on the values of the culture.

> 'While a risk expert may be told to work out the costs of achieving a certain objective, other, more powerful motivations may lie behind the mandate, never spoken because taken utterly for granted, built into the fabric of the institution.'
>
> (Douglas and Wildavsky 1983, p.88)

For Douglas and Wildavsky, the 'risk debate' (what risk is and ought to be) is actually

about the interests and outlook of institutional groups. What these authors suggest is that cultural analysis allows one to understand the decisions individuals make, or their thinking about risk, by exploring their collective values and beliefs held within the cultures in which they live. This affects what risks are selected for attention and also how individuals respond. Therefore in order to alter how people perceive and select risks to respond/not to respond to, it requires a change in the social organisation rather than in education.

In describing social organisation, Douglas and Wildavsky (1983) specify three different institutional structures that are labelled according to the predominant type of relationships within these structures: hierarchy, individualism and sect. Hierarchy, as the name suggests, has attachments between individuals of different ranks. These ranks make up the sum of the whole with each having responsibility to the others. The second structure is individualism and, as this name suggests, attachments are transitory and based on need. The final structure is sects where attachments are made with similar individuals or group for the purpose of combining strength against 'others'.

The 'hierarchical institutional structure' will be described in more detail as it relates to the way in which medicine conducts itself.

Hierarchical structures work as a system because those within them are working to common values, traditions and rules and deal with the same or similar difficulties. They are described as being concerned with collective honour and decision making as a product of that collective. As a consequence of 'standing together' no one person within the hierarchy can take the blame if things go wrong. They have collective responsibility and any individual is anonymous within the decision making process. Decision making about risk is therefore contextual and social and places constraints on what are the acceptable choices to make within situations. The hierarchy is viewed as 'more tolerant than a society of equal individuals' (Douglas and Wildavsky 1983, p.91).

> '... a well-run hierarchy has a lot to offer its members, and in consequence it is not worried less they secede. Loyalty being secure, the main concern is that the up-down structure be not weakened.'
>
> (Douglas 1994, p.225)

Taking this perspective gives another explanation for some of the criticisms directed at the medical profession by the media: 'collectiveness' is just the way medicine functions but is interpreted by others as 'closing rank'. It also brings into question the notion of a 'blame culture'. From Douglas' description of hierarchy, if it is an appropriate label to apply to medicine, blame culture is more likely to be a label applied to medicine by those outside it and perhaps is too simplistic an explanation of what is happening within the 'collective'.

Douglas's work could be criticised for portraying people as passive within institutions. However, this would be an unfair criticism of her work. Her cultural analysis sets out to focus its' enquiries on institutions and culture rather than on the individual and consequently, this is what she captures in her work. What did appear to be missing from the literature were studies that had incorporated both individual and cultural perspectives on 'risk'.

This section has illustrated different ontological and epistemological positions on the nature of risk and explained what appeared initially to be inconsistencies with the usage of the term. The following section demonstrates some of the previously described stances within disciplines with specific attention given to the medical profession. The stances reflect the underlying beliefs of the disciplines and give valuable insights into how risk is perceived.

2.2 Approaches to risk by different disciplines and professions

Ruck (1993) views the definition of risk as a conceptual continuum with probabilities and magnitudes of consequences at one end in disciplines like engineering and, at the other end, sociological disciplines concerned with trust and consent. Holzheu and Weidemann (1993) simplified the distinctions between the professions: 'engineers determine residual risks, lawyers seek to define socially acceptable risk, opinion polls are concerned with public attitudes to certain risks, politicians' decide what risks are politically acceptable, with the emphasis on the consequences of certain actions or processes. While, in others, it is the actions and processes themselves that constitute the risks' (p.9).

The majority of the disciplines presented in Renn's table (Figure 2, p.27) take a techno-

scientific perspective which relates to the realist and objective stance to risk described previously. Risk is viewed as uni-dimensional and calculable via decision-making models. Utility is a term commonly used in this context and refers to the stated preference for each known outcome and can be viewed in terms of money or other values. The assumption underlying utilities is that different outcomes can be assessed with a common scale. This approach presupposes that general rules are applicable in specific circumstances and people are rational and consistent in their decision-making. An example is Expected Utility Theory (EUT) which describes decision-making as a process whereby choices are made between alternatives, each choice possessing various pros and cons. Decisions are based on making the best choice; best being the alternative which maximises the benefits. With decisions being made to optimise personal gain, within the EUT framework, an individual must be able to identify his own needs. Interestingly the descriptions of the institutional structure of 'individualism' described by Douglas relate better to utility theory than to hierarchical structures. In both individualism and utility theory, individuals are making decisions about outcomes in relation to their own needs rather than the collective needs of others.

As Renn's figure shows in the section under "basic problem areas", each one of the perspectives poses problems with the premises on which they are founded. For most, the problem lies with applying averages and summary calculations to an individual and making generalised calculations meaningful to specific situations. The opposite is true in social and cultural theories of risk where the complexity and the relativity of the phenomenon captured make it difficult to generalise and to apply meaningfully to wider populations.

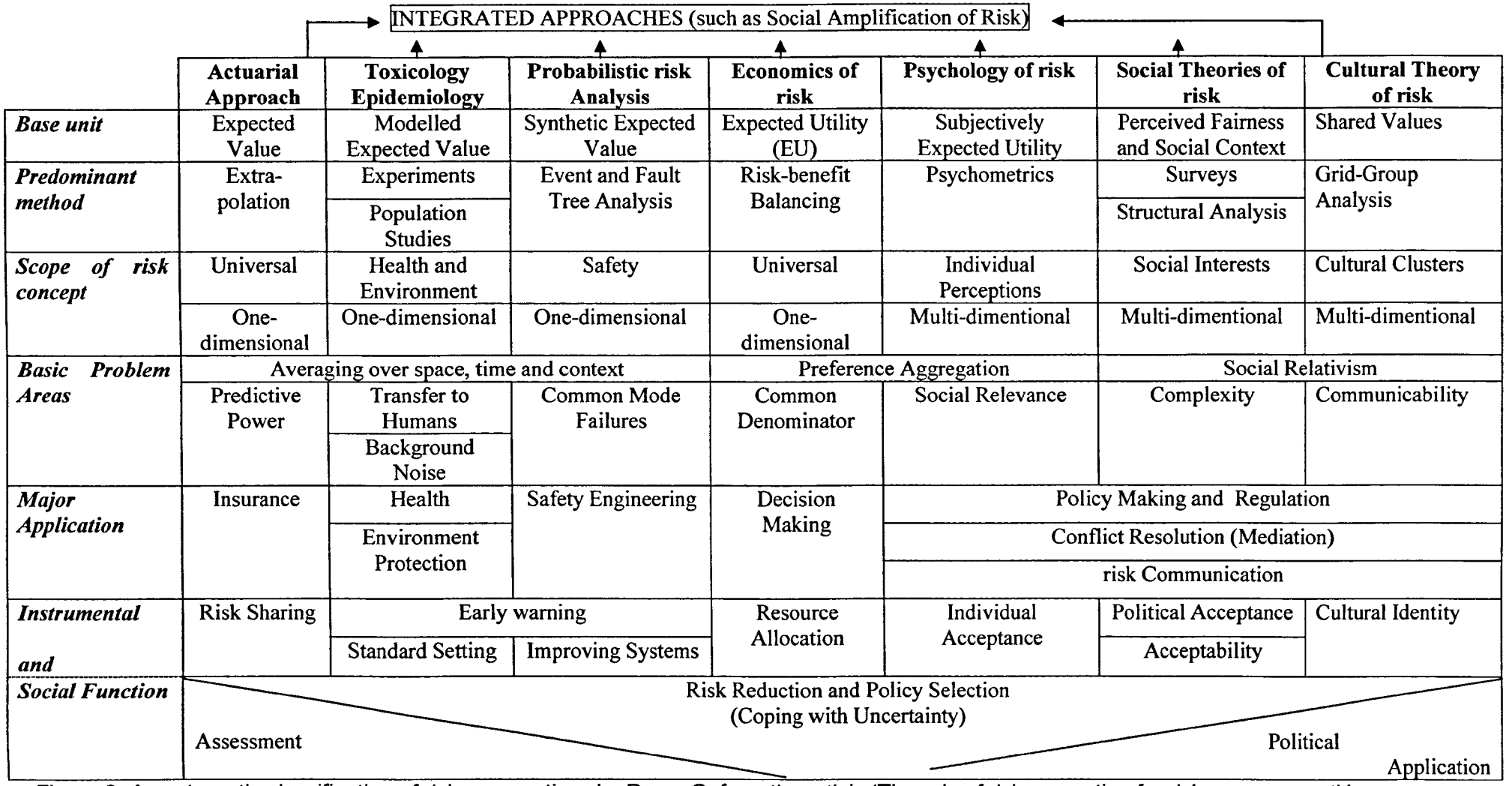


Figure 2. A systematic classification of risk perspectives by Renn, O. from the article 'The role of risk perception for risk management' in Reliability Engineering and System Safety Vol. 59 1998, p.52

In an analysis of ESRC bids for funding on 'Risk and Human Behaviour', Blaxter (1999) looked at the researchers' background against the type of projects proposed. Bids from psychologists were mainly 'objective' using quantitative methods for comparative analysis and focused on choices and decision-making. These studies were designed to show how perceptions related to characteristics of risk and also to individual beliefs and value systems. Anthropology and sociology bids were concerned with cultural theories of risk and the role of social institutions and structures. For bids concerned with environmental and technical hazards, the 'scientific'/ objective approach was predominant.

Although medicine was not listed in the Blaxter paper, an epidemiological approach to risk was given. This involved defining risk as a 'factor' which gave an indication of the likelihood or probability of developing health-related conditions or preventing them. As Blaxter noted, defining risk this way excluded chance or accidents or the social construction of risk.

The following section focuses on the use of the term risk within medical literature with specific attention given to its clinical application. This reflects my interest in discovering how the term relates to the clinical context.

2.2.1 Medicine and risk

Medicine, as a discipline, has a complex and interesting relationship with the term 'risk'. It uses numerical values to calculate the frequency and distribution of disease and in calculating morbidity and mortality from pathologies and medical intervention. These values are labelled in medical literature as 'risks' and expressed as probabilities or chance, presented as percentages, ratios and/or more simply as the number of individuals affected from a stated size of group. 'Risk' can also be expressed as an interval scale where ratios are given against descriptors. For example, the Paling Perspective Scale gives a 1:1 to 1:10 as 'very high risk', 1:10 to 1:100 as 'high risk', through 'moderate risk' (1:100 – 1:1,000), to 'low risk' (1:1,000 to 1:10,000) to 'very low risk' (1:10,000 to 100,000) to 'minimal risk' (1:100,000 to 1:1 million) and 'negligible risk' (1:1 million to 1:1 trillion) (Paling 2003).

Probability is a frequently used term. It depicts the extent to which an event is likely to occur and is expressed mathematically on a scale from 0 to 1 or as a percentage. Certainties (such as 'All people will eventually die') have a probability of 1 or 100% and impossibilities as a probability of 0. Gigerenzer and Edwards (2003) distinguish between different numerical expressions of probability; single event probabilities, conditional probabilities and relative risks. Single event probabilities can be expressed as *X* % chance of *Y* occurring or *X* expressed in relation to the number affected within a group (e.g. four patients in ten). Conditional probabilities are more specific and give insight to the numerical value with the inclusion of sensitivity, specificity and positive predictive value. For example, sensitivity relates to the accuracy of a test in predicting a disease, specificity relates to the ability of a test to accurately distinguish those who do not have a disease and positive predictive value relates to a tests' ability to accurately detect those that have the disease. All are expressed as probabilities. Whilst absolute risk relates to the number of people saved as a proportion of the whole population (patients who die without treatment – patients who die with treatment), relative risk focuses on the proportion of people who are actually saved by treatment relative to the people who would have died (absolute risk ÷ amount of people who would die without treatment). This means that an absolute risk is a more accurate representation of the probability of an adverse outcome relative to the population as a whole. Calculations may also include 'number needed to treat'. This calculation tells doctors how many people will need to be treated for a life to be saved.

Medicine also identifies and calculates features that, if present, are more likely to lead to adverse outcomes. These are referred to as 'risk factors' and are used to facilitate doctors and inform patients of various health risks from disease or interventions. 'Risk calculators' are available on the web to calculate the combined effect of multiple risk factors (Woloshin *et al.* 2003). 'Clinical risk' is a label that appears to be linked with any danger or hazard associated with patient diagnosis, treatment or outcome (Brighton Health Care 2004).

These numerical values of risk are available to inform clinical practice so that decisions are made on the available scientific evidence. Although pervasive throughout the literature, the term risk is not only associated with these calculable risk values.

Ravetz (cited in Horlick-Jones 1998) differentiates between technical and practical problems in risk analysis where the technical belongs to the academic world and the practical is concerned with the 'real-world' of practice. The technical, in the form of calculable risk values, informs clinical practice but is not actually about practice. Practical risk problems in medicine are covered in the medical literature under the headings of risk perception, risk assessment, risk management and risk communication. Unlike the calculable risk values, these appeared more relevant to this study. Whilst risk perception is about what is perceived as 'risk', risk assessment is often concerned with judgements and decision-making in practice. Risk management is about the control of 'risk'. Risk communication is concerned with how risks will be related to the public.

2.3 The risk literature relevant to the study

In the following account, the literature pertinent to risk perception and assessment will be reviewed as these were considered to be relevant to the study. When examined, the risk management literature was primarily involved with protocols, standardised practices and official guidelines. The risk communication literature related to communication between the practitioner and patient (see special edition of the BMJ volume 327, 27th September 2003). These were viewed as unrelated to this study and therefore the literature is not discussed further. There is also considerable literature relating to 'risk and safety' which appears to equate to the prevention of medical errors (see special edition of the BMJ volume 320, 18th March 2000). Although inaccurate perceptions and assessment of risk by PRHOs may ultimately lead to medical errors and be a product of faulty judgement, it was felt that this literature was not directly pertinent to the study and is therefore not reviewed in this thesis.

2.3.1 Risk perception

Risk perception is concerned with people's beliefs, attitudes, judgements and feelings as well as their wider social or cultural values (Pidgeon 1998). The study of risk perception is concerned with discovering commonly held views about risk (McDaniels 1998). This understanding is useful because of the relationship between perceived risk and action.

> 'Whenever risk is important, so is perceived or subjective risk. People typically do not respond directly to the real risks, they act on their beliefs or perceptions.'
>
> (Sjoberg 1998, p.277)

Perception per se is said to happen through stimulus of sensation and sense gained from these data (Gross 1987): we do not experience the world directly but make sense of it by analysing and interpreting stimuli and from these, conceptualise and arguably construct reality. Perception is selective and organised and because it goes beyond the information given, based on inference. Individuals do not and cannot pay attention to all stimuli so take note of some whilst ignoring others. What an individual interprets from stimuli will predetermine what attention is paid to in any given situation. For example, in a busy classroom with multiple activities taking place at one time the teacher may focus on one group where he perceives problems may arise, even when significant noise is being generated by all groups. If perception is sensing in this way, then the process of risk perception is sensing that which, perhaps only intuitively, is recognised under the label of risk. This would suggest that in any given clinical situation a clinician is sensitised to certain patients and environmental cues – the 'risky' situations. For Douglas, the cues would, of course, be socio-culturally derived.

> 'Each form of society shuts out perceptions of some dangers and highlights others'.
>
> (Douglas and Wildavsky 1983, p.87)

This ultimately affects what is paid attention to and acted upon.

> 'The organisational and social environment in which the decision maker finds himself determines what consequences he will anticipate, what ones he will ignore'.
>
> (Douglas 1986, p.83)

Despite perception being recognised as a complex constructive process, the cognitive sciences often rely upon psychometric testing to capture it. The risks selected and

presented to the subject (the 'lay person') are those identified predominantly by the researcher (the 'scientist'). This type of study is illustrated in the example below.

Fischhoff's *et al.* (1978) classic study 'How safe is safe enough?' asked seventy-six people to respond to questions about 'perceived benefit' and 'perceived risk' for thirty activities and technologies including things like alcoholic beverages, contraception, fire fighting, large constructions and mountain climbing. These were judged against a significant number of scales about; how voluntarily people engaged with the risk, the immediacy of death from the risk, the individual's knowledge about the risk, knowledge about the risk by science, control over the risk, newness or familiarity of the risk, whether it killed many people at one time or the same number over a period of time (catastrophic or chronic), whether the risk was something that they could personally live with or dreaded and the severity of consequences from the risk.

Asking any group to judge risks via prescribed lists means that participants can only choose between those elements that the researcher offers and on a predetermined scale. These might not be the 'risks' the subject would have chosen him/herself or the way a subject would have measured it. The importance of open-ended research methods has been recognised as potentially useful in gaining insight into subjects' own meanings of risk (Henwood and Pidgeon 1992).

Fischer *et al.* (1991) saw the limitations of the closed questioning technique and set out to test a questionnaire for its potential use in eliciting judgements regarding the risks that concerned the respondents. The respondents were asked to list the five risks of greatest concern and rank them in decreasing order of concern. They were then asked specific questions relating to their 5 chosen risks and their responses were coded. Although this study goes some way to addressing the previously cited limitations, the use of a scale using 'willingness-to-pay' from one's own wages as demonstrating peoples' 'intensity of concern' is questionable. The results indicated that the respondents were least willing-to-pay for natural hazards and technical hazards but were willing to pay more for personal problems. It seems more likely that these data demonstrate an expression of what individuals perceived they had control over or where they felt they could effect change.

Prescribed lists and set scales do not allow a researcher to capture people's different conceptualisation of risk nor do they recognise that individuals may apply different criteria within different contexts. Taking this approach may reflect a uni-dimensional view of what risk is or perhaps the researcher knowingly sacrifices the complexity of a multi-dimensional phenomenon (and therefore validity) in the pursuit of reliable and generalisable data.

Deciding what constitutes 'risk' at the beginning of a study may impose a particular perspective of risk which reflects the socialisation and cultural influences of the researcher but not those of their subjects (Gustafson 1998). As Dietz and Rycroft (1987) suggest, 'taken together, age, gender and field of education are not as important for the attitudes and values of risk professionals as is place of employment' (p.45). This appears to agree with Douglas who suggests that the dominant characteristics of the institution or profession guide the perception of risk. Consequently, for Douglas, studying risk perception inevitably captures culture (Douglas 1994).

2.3.1.1 Risk perception studies in Medicine

The majority of risk perception papers held in Medline are concerned with 'lay-beliefs'. These studies are typically surveys using questionnaires with ordinal scales.

The following illustrations of risk perception studies in medicine have been drawn from current literature. These were not available at the time of the study but are used here to demonstrate the continued currency of this approach to risk perception in the medical literature.

Beebe-Dimmer *et al.* (2004) surveyed 111 brothers of men with prostate cancer to assess their perception of 'risk' from the pathology. In this instance the data was collected using a structured interview via a telephone. Risk perception was assessed by asking each brother to state on a 10 point scale how likely he thought he was of getting prostate cancer and on a 5 point scale his level of concern. The assumptions here are that the perceived likelihood of getting prostate cancer can be validly and

reliably expressed by a scale of 0 –'certain not to happen' to 10 –'certain to happen' and that the term 'concern' has no broader or more complex meaning to the respondents than 1 – not at all concerned to 5 – very concerned.

Rarer in the biomedical literature is the type of study conducted by McAllister (2003). This study took a grounded theory approach to try and explain why people differ in their reactions to genetic testing. It also explores personal theories on inheritance and coping strategies. The study considers risk perception of cancer in family members as did Beebe-Dimmer *et al.* but in this instance with non-polyposis colon cancer. From her study, McAllister developed a 'theory of engagement' which describes how people vary in their emotional and cognitive connection with their increased chance of having cancer. Because of this engagement, to use a term from Beebe-Dimmer *et al.*, some people are 'concerned', others were not. McAllister's study comes closer to capturing what was described as perception at the beginning of this section. This study explains how individuals analyse and interpret selectively and that this is not necessarily associated with levels of knowledge.

Studies have also considered differences between lay and expert perceptions; the focus being on the knowledge deficit between what is known by the professional and what patients or lay-people believe. For example, Bjerrum *et al.* (2002) record differences between general practitioners and patients regarding their knowledge and perception of risk factors in relation to the patient's ischaemic heart disease (IHD). Information is collected on a self-administered questionnaire asking the patient whether he smokes, exercises etc. and his perception of his overall risk of IHD. The scale is: increased (high), normal (moderate) or less than normal (low). These responses were compared to the doctor's perceptions of that patient's overall risk of IHD. A sample bias was recognised by the researchers as potentially influencing the results but they felt confident enough in their findings to state that 'patients are unaware of their actual risk of IHD' (p.20).

This and similar studies apply a realist perspective to risk. The exploration of lay beliefs is undertaken to discover what people do not know or know incorrectly so that these misconceptions may be addressed. This suggests a pathologising of risk and lay-

peoples' perceptions approached as some sort of therapeutic problem. For example, Hopwood states that women's perceptions of breast cancer were largely inaccurate and counselling would significantly improve the accuracy of perceptions (Hopwood 2000). This perspective may explain why there are so few studies exploring doctors' risk perception. It might be thought unnecessary when doctors are informed and their views are considered to be based on scientific knowledge and evidence. They know what the 'real risks' are in any given clinical situations.

More studies have been undertaken to assess the accuracy of the health professionals' perceptions against known criteria. These studies have also adopted a realist stance to 'risk' and captured responses using numerical data gained from scales. For example, Dijkstra *et al.* (2003) captured different professions and professionals' opinion on the chance of patients developing complex regional pain syndrome (CRPS) from their fractures. Dijkstra uses as a measure, a 0 to 100 scale (0 equating to the patient not developing CRPS to 100 being awarded if they felt the patient would certainly develop CRPS). 'Risk' in this instance appears to equate to the probability of a patient developing CRPS and is used to assess the accuracy of the clinicians' predictions. Walker *et al.* (2003) uses multiple aspects to assess physicians' perceived personal risk of developing diabetes. The measurement involves 53 items (generated by experts) and a Likert scale where 1 represents 'almost no risk' and 4 equates to 'high risk'. Walker's use of the term 'risk' appears to equate to chance or probability. 'Risk' for Hanslik *et al.* (2001) relates to danger as it is perceived by physicians with regard to vaccines for adults with immunological diseases. In this instance a visual analogue scale is used where 0 equates to 'very low risk' and 10 centimetres equates to 'very high risk'.

In their findings these studies demonstrate that differences and inconsistencies do exist between practitioners but, as the notion of risk is so poorly conceptualised, there may be many reasons why these findings occur. One must also question the use of such simple scales to capture 'perception' or of the scales' efficacy in addressing the research questions.

Within the medical literature there has been little attention paid to considering risk

perception as socially and culturally determined (Reventlow *et al.* 2001). Martensson *et al.* (1998) consider how women with congestive heart failure see their 'life situation'. Although this study only mentions the term 'risk' in relation to identified risk factors, the study's approach (open semi-structured interviews) allowed the women's perceptions of their life situation to emerge from the analysis of the data. Lupton *et al.* (1995) used interviewing to explore heterosexual motivation for attending an HIV antibody test. This study demonstrates that having this test was not inevitably linked to feelings of being 'at risk' but about acting responsibly or acting to please a new partner. Vahabi and Gastaldo (2003) used open questioning in a questionnaire to explore women's beliefs about breast health practices. Their data indicates how relationships and personal responsibility are again influential in explaining the women's actions.

The stance adopted by Douglas and Widavsky (1983) describing how dangers are socio-culturally selected for attention, has not been a theme explored in the medical literature about doctors. 'Risk' has been principally thought of as a problem of knowledge deficit (Hansen *et al.* 2003) and perhaps therefore not something that the competent doctor would 'suffer' from.

2.3.2 Risk Assessment

Risk assessment is often associated with decision-making or as part of judgement or reasoning (Bohnenblust and Slovic 1998; Hoegberg 1998; Vlek 1996; Otway and von Winterfeldt 1992; Burley and Inman 1988; Krewski *et al.* 1987; Covello 1985; Earle and Cvetovich 1985; Hammond *et al.* 1985; Vlek *et al.* 1985; Eddy 1982; Kahneman *et al.* 1982; Tversky and Kahneman 1981; Kasper 1980). If risk perception is what one perceives as a 'risk', risk assessment is the decision processes, judgements etc used in weighing up those risks. As 'risk' is studied from realist and relativist perspectives in risk perception studies, these stances are repeated in risk assessment studies.

The biomedical science literature on risk assessment supports the notion of 'risk' as an objective calculable outcome of probability and of negative consequences (Slovic 1998). It is in this area of the literature that risk-trees, algorithms and models exist. However, if risk assessment is about decision-making in practice, it must also be concerned with what are the acceptable / unacceptable decisions to take within that

context and therefore be less prescriptive than the biomedical models on risk assessment suggest. Although statistical representations are pervasive throughout this literature, individual doctors may be less attuned to this way of thinking than this prominent stance suggests (Smith 2003; Hoffrage and Gigerenzer 1998).

Not all the literature views risk assessment as a numerically calculable phenomenon. Tversky and Kahneman state that 'people rely on a limited number of heuristic principles which reduce the complex tasks of assessing probabilities and predicting values to simpler judgemental operations' (Tversky and Kahneman 1974, p.1124). The results of many studies by these authors shows that people do not follow logical and statistically sound rules in their decision-making. Experiments by Tversky and Kahneman have shown the importance of 'representativeness', 'availability' and 'adjustment and anchoring' in influencing people's decisions.

'Representativeness' is used to judge the probability of one element affecting another in some way. Importantly, people will disregard probability ratios (the chances of it actually happening) to meet with their own beliefs about how likely it is to happen. 'Availability' is where people will judge an event as more likely to occur or occurring more frequently when it is easier to imagine or remember. People's estimations are also made so that the answer they finally arrive at is the answer they wanted ('adjustment and anchoring'). This is thought to be functional in reducing anxiety and uncertainty and ensures that individuals are likely to be confident about the judgements they make.

There are problems with the generalisability of Tversky and Kahneman's work as it is based on scenarios that utilise games with monetary rewards. It is argued that the people taking part in Tversky and Kahneman's 'games' did not have a vested interest in the outcomes and their behaviour may not be the same as if they were in situations where the outcomes affected them personally or affected another person's well-being as is the case in medicine. By asking people to make decisions about things they have no strong opinions about, Tversky and Kahneman's work ignores how situational factors may affect responses.

2.3.2.1 Risk assessment in medicine

A significant section of the risk assessment literature in medicine is concerned with the probability scores related to morbidity and mortality from pathologies or drug reactions. At the basis of this premise is the 'risk factor'. Risk factors are particular features that, when present, are associated with an increased likelihood of disease or adverse events. For example, Caumo *et al.* (2001) identified risk factors for post-operative anxiety in adults.

In medicine, risk assessments utilise models or structured frameworks under which the potential for adverse incidents or effects can be calculated. Risk assessment frameworks are applied at a molecular level [e.g. 'The emerging role of myeloperoxidase and oxidant stress markers in cardiovascular disease' by Brennan and Hazen (2003)], but are also used clinically to assess the likelihood of pathology [e.g. 'Measurement of nasal bone length at 11-14 weeks of pregnancy and its potential role in Down syndrome risk assessment' by Orlandi *et al.* (2003)] as well as outcomes from interventions [e.g. 'Re-operation for bioprosthetic aortic structural failure – risk assessment' by Jamieson *et al.* (2003)].

This way of viewing the assessment of 'risk' reinforces a scientific model of identifiable, quantifiable and calculable risks which can be managed if not eliminated. Whether this describes the way in which a clinician works and makes decisions is contestable.

A letter published in the Annals of Internal Medicine, describes medical heuristics as rules that are not developed from empirical data but from common sense or other means (McDonald 1996). Included under this term are first principles, axioms, postulates and rules of thumb and these are viewed as the starting points for decision-making. Although McDougal recognises that heuristics are the personal criteria for making clinical decisions, he must perceive this as a bad thing as he calls for a standardisation of these rules based on 'statistical realities' and selecting the best for use in clinical practice. This appears to miss the point of heuristics as described by Tversky and Kahneman, but what is suggested may be explained by the author's multiple usage of the term. McDonald's heuristics appear to cover anecdotes or sayings passed from one staff member to more junior staff which is not the same as an

individual's use of 'rules of thumb'. Others, responding to McDonald's letter, support this simplistic meaning of the term heuristic. For example, 'When you hear hoof-beats, think of horses, not zebras' or 'If you can't keep them alive when they are alive, you can't keep them alive when they are dead' (Oetgen 1996).

The medical literature on risk assessment reflects the official and formal approach to practice but does it actually describe how clinicians think about and manage 'risk' in the busy world of practice with limited time and multiple agendas? Risk assessment in the literature describes an ideal of practice. This study wanted to focus on a realistic, on-the-job assessment of a situation as a 'risk'. Other terms linked with 'risk' helped give insight into how practice might more realistically be framed. These were 'risk aversion', 'tolerable risk', 'risky decisions' and 'acceptable risks'.

Whilst risk aversion may appear a desirable pursuit in medicine, from descriptions of the pre-registration year and medical care it seemed unlikely that medicine could be risk averse and more likely that doctors tolerate some 'risk' and respond to the intolerable ones. 'Tolerable risk' does not mean 'acceptability' (Pidgeon *et al.* 1992) but refers to the willingness to live with a risk to ensure certain benefits. To tolerate a risk means that it is not considered negligible or something that might be ignored but rather as something that needs to be kept under review and reduced if possible. With different acceptable tradeoffs (Fischhoff 1994), it is likely that different cost / benefit ratios exist and that people and/or professions differ in the degree to which circumstances are voluntarily accepted (Vrijling *et al.* 1998). These descriptions relate better to my own experiences of clinical practice rather than the calculated, considered and rational approaches described in the majority of medicine's risk literature.

'Risky decisions' are defined by Fischhoff *et al.* (1984) as 'choices among options, each of which has a variety of relevant features, including a level of risk' (p.127). These decisions may include doing nothing. This would suggest that making decisions on what is tolerable or acceptable may vary and, unlike calculated and controlled risk assessments, perhaps these are dependent on the individual or the circumstances under which the label is being applied.

> 'Rather than determine the acceptability of a risk by constructing a single index which could be applied to all risk activities, we should analyse each risky decision in its own context'
>
> (Watson 1981, p.24)

This suggests that 'acceptable risks' might be variable and context dependent. However, if 'acceptable' is professionally dependent, the labelling of something as a 'risk' would be based on such values as 'custom of usage', 'prevailing professional practice' and what is considered to be 'best available practice' (Lowrance 1976). From this perspective, the conceptualisation of 'risk', and the definitions that arise from this conceptualisation, would be professionally mediated.

2.4 Conclusions

Although 'risk' is associated with the terms chance, probability, harm, loss and hazards, these cannot be thought of as definitive descriptors. 'Risk' can be conceptualised in different ways by individuals, professions and disciplines. In fact with so many meanings and usages, the term has the potential to become meaningless and nothing more than what Dowie refers to as a 'conceptual pollutant' (1999, p.42). However, what the literature did indicate was that exploring what 'risk' is, or is judged to be, might capture the values of those using the term and what matters to the individual.

The research approach taken towards 'risk' within the technical sciences is to treat it as a very real and tangible entity that is uni-dimensional and conforms to the laws of science. Within social sciences there are differing beliefs on how 'real' or 'relativistic' 'risk' is and how much of its conceptualisation is influenced by, or a product of culture and socialisation, or is unique to the individual. Predominant within psychology is a perspective on 'risk' that views it as stable enough to capture even though it might be perceived as multi-dimensional. Others, predominantly within sociology, view 'risk' as illustrative of the relationships between the individuals' knowledge, values and anxieties. In this latter stance, rather than being fixed, 'risk' continually alters its configuration.

The medical literature demonstrates frequent usage of the term within studies but offers a restricted conceptualisation of it. This could be explained by it being accepted as an objective, calculable entity within the profession, with the professionals knowing the 'real risks'. 'Subjective risks' were largely seen as something that was experienced by 'others'.

The exploration of the risk literature became significant for two reasons:

1. Reading from different discipline perspectives illustrated the different ontological and therefore epistemological stances towards 'risk'. The diverse use of the term made it difficult to draw any meaningful conclusions about its nature but what was apparent was the significant effect a researcher had on a study through the theoretical stance he adopted towards 'risk' and how it was defined:

> 'Whoever controls the definition of risk controls the rational solution to the problem at hand. If you define risk one way, then one option will rise to the top as the most cost-effective or the safest or the best. If you define it another way, perhaps incorporating qualitative characteristics and other contextual factors, you will likely get a different ordering of your action solutions'
>
> (Slovic 1998, p.76)

This line of reasoning challenged the usefulness of me defining 'risk' if what I wished to understand was what PRHOs recognised it as (risk perception) and what mediated their responses to it (risk assessment). The study needed to start from a clinician perspective and not one of mine.

2. The review showed a significant gap in the literature with regard to how clinicians' might perceive and consequently judge risk in a clinical situation. It seemed unlikely from my own clinical experiences, or from observing clinicians at work, that the formalised mechanisms described in the risk assessment literature were influential on clinical judgements on a day-to-day, minute-by-minute basis. This gap in the risk literature was compounded by the under-conceptualisation of clinicians at work.

The above realisations were instrumental in terms of this study's approach and design. It suggested that I should not start the investigation by taking a particular perspective on 'risk' or by define it but allow it to emerge from the data. The methodology would need to be congruent with this decision and involve methods that would be effective in achieving this goal.

The literature on professional practice needed to be explored to see whether it gave more insight into how clinicians practiced and might perceive and assess 'risk'.

Chapter Three– Exploration of the literature on professional clinical practice

3.0 Introduction

An exploration of the medical 'risk' literature gave rationalist explanations and/or unsophisticated accounts of how practitioners work and make judgements within practice. These did not adequately reflect my own experiences or tally with doctor's accounts of how they worked. The lack of concordance between these and the literature suggested that there was firstly a gap in the literature on how 'risk' was conceptualised by a clinician and what influenced responses to it within a clinical setting. Secondly, that further reading was needed.

As with the previous review, the exploration of the professional practice literature was undertaken to develop theoretical sensitivity. It was hoped that the study could then start from an informed position in terms of what the issues might be when capturing the phenomenon. The literature on judgement is only briefly engaged with in this chapter as it was not part of the theoretical sensitisation process. It was felt that as judgement was the focus of the study an understanding of it needed to emerge from the data. Doing this would mean that the literature would not influence emerging conceptions as the study progressed.

The following chapter is split into three main sections: (3.1) the nature of professional knowledge, (3.2) the acquisition of professional knowledge and finally, (3.3) a section on how clinicians practice. These are explored in relation to clinical work rather than classroom activities although it is recognised that professional knowledge and its acquisition should not be considered as only a product of work-based activities.

The literature on the nature of professional knowledge was thought pertinent to the review because the study was perceived as ultimately pursuing greater insight and understanding of a specific type of professional knowledge - the judgement of risk.

It was never the intention within the study to find out how PRHOs were socialised or learned how to make these judgements but as the study was about doctors in their first year of full-time practice it was considered useful to review these aspect. They are

covered briefly in this chapter to demonstrate how the literature impacted on the research approach.

The section on clinical practice was viewed as particularly relevant as this was the context the study wished to focus upon and in terms of the 'risk literature' appeared most poorly conceptualised.

When exploring the literature on both professional knowledge and knowledge acquisition it was apparent that these, like the risk literature, were viewed from different perspectives. Therefore the sections on professional knowledge and its acquisition are split into further sub-sections covering both cognitive (3.1.1 and 3.2.1) and socio-cultural perspectives (3.1.2 and 3.2.2).

A final concluding section (3.4) describes the insights gained from both the risk literature and the professional practice literature.

By dividing this chapter into 'knowledge', 'learning' and 'practice' I have fragmented what are interrelated and interdependent aspects of clinical work. The chapter therefore describes distinctions that are not always made in the literature and certainly do not exist in clinical practice. The distinction has been manufactured to facilitate the reading of this chapter.

3.1 Professional knowledge

3.1.1 Cognitive perspective

This section of the literature review draws exclusively on the work of Michael Eraut. This has been done because his conceptual framework and accounts of professional knowledge are developed from his own and other people's empirical and theoretical work and has led to coherent and comprehensive explanations of professional knowledge from a cognitive perspective. His work and theorising therefore includes the other theorists in this field.

More recent work by Eraut is presented in the discussion chapter.

The term 'professional knowledge' covers a large subject area '...in which more specifically defined clusters of meaning reside' (Eraut 1994, p.16). Consequently it has numerous terms associated with it. Reading about professional knowledge can be a confusing process because theorists use different terminology to describe similar but not necessarily the same phenomenon. This is perhaps most true with codified and personal knowledge, the terms used to describe the perceived dichotomous aspects of professional knowledge. For example, codified knowledge may be associated with the terms technical, articulate and 'knowing that', and personal knowledge with the terms practical, tacit, and 'knowing how'. Confusion may also stem from terms that represent different ways of categorising knowledge; categorisations that are descriptive of the source of knowledge, the context for knowledge use or the type of knowledge needed for practice. The terminology used in professional knowledge will now be described.

3.1.1.1 Codified and personal knowledge

Codified knowledge is knowledge that can be reduced to technical descriptions (Eraut 1994). It may also be referred to as public knowledge as it represents what the profession knows, can describe and accepts as the body of knowledge that underpins practice. It contains propositional knowledge and includes the theories, concepts and principles of professional practice and can readily be assessed because of its explicit nature. Sources of codified knowledge are literature and leaders within the field.

Personal knowledge is knowledge in its personalised form (Eraut 2000a). It can include codified knowledge that is personalised as well as knowledge of procedures and processes. Personal knowledge is gained from 'being there', from doing things and, experiencing them. It is said to develop in two ways. When an experience is continually repeated, it is stored in semantic memory where it can be amalgamated into generalisations or higher cognitive constructs. One-off events that are meaningful to the individual will also be remembered and held as impressions in the episodic memory. Over time, these single events can be amalgamated with others into the semantic memory or remain held within episodic memory.

The use of semantic memory is important as it allows the practitioner to work fast and with little effort. For example, on first sight of a patient, the experienced clinician is

likely to have a provisional diagnosis based on previous encounters that will guide their questioning and investigations from that point onwards.

Personal knowledge, as the name suggests, is highly personalised and because it has been gained from the individual's experiences and interpretation of those experiences, is prone to idiosyncrasies. Whilst codified knowledge is explicit, personal knowledge can be explicit but it is often tacit. The individual may not be able to describe the personal knowledge he holds or even be aware that it exists. As a consequence, assessing, evaluating or even observing this type of knowledge is difficult.

3.1.1.2 Knowledge contexts

Appreciating that knowledge is contextual is important because it explains different values about knowledge and why, if knowledge is acquired within one context, it will not necessarily be accessible in another. For example, a medical student may have been taught about peripheral vascular disease and able to recall, in detail, the signs and symptoms, but be unable to recognise these same signs and symptoms in a patient.

Eraut describes three contexts for knowledge use: the academic context, the organisational context and the practice context (1994).

The academic context is characterised by theory, alternative and learned views. The written word is its most common medium. The organisational context is concerned with the development of policy and procedures and rather than being validated by experts as in the academic context, it is validated by public debate. Whilst the organisational context is characterised by talking about practice, the practice context is characterised by action - by the doing. In the practice context what matters is experience and knowing what needs to be done in that instance. For these reasons knowledge in the practice context is validated by personal judgement.

3.1.1.3 Knowledge type

Eraut describes the types of knowledge head teachers need to fulfil their management roles (1994). The findings from a study of head teachers cannot simply be transposed

onto PRHOs making judgements on 'risk'. However, the classification of knowledge by 'type' was considered interesting as it demonstrates the types of knowledge needed to function in a work environment. It also hints at its complexity. The knowledge types he describes are: knowledge of people, situational knowledge, knowledge of educational practice, conceptual knowledge, process knowledge and control knowledge.

Eraut's 'knowledge of people' is concerned with the knowledge one has of others and is used to make judgements about peoples' actions and on how best to manage them. 'Control knowledge' is about the knowledge needed to manage oneself. Control knowledge is deemed especially important by Eraut because it is the 'means by which one uses all the other forms of knowledge' (1994, p.81).

'Situational knowledge' encapsulates the knowledge people use to interpret and understand situations and although the majority of this knowledge could be explicitly expressed, it is unlikely to be written down. Individuals are felt to hold comparable situational knowledge with those in similar roles. This might indicate that situational knowledge is partly collegial, although individual frameworks will ensure some variation between people.

'Knowledge of educational practice' is concerned with knowing about policies and practices as well as how to action these. Conceivably changing 'educational' to 'clinical' would make this applicable to a medical situation. However, the policies and practices described by Eraut relate to the implementation of governmental initiatives at an organisational level. It is inconceivable that this knowledge would be needed by newly qualified teachers and therefore 'knowledge of clinical practice' unlikely to be relevant to PRHOs.

'Conceptual knowledge' refers to the conceptual framework used by individuals and underpins their practice and, although abstract, is said to become apparent in their descriptions. 'Process knowledge' relates to 'knowing how'.

As stated above, there is a need for caution in applying the categories of knowledge held by a head teacher to the situation faced by a very junior doctor. The

categorisation of knowledge into different types was perceived useful as it indicated a way of viewing knowledge, not just as dichotomous but as multifactorial, interrelated and interdependent.

3.1.1.4 The perceived relevance of these cognitive perspectives to the PRHO study

It was evident from Eraut's accounts of professional knowledge that the factors influencing a PRHO's response to a judgement call within a clinical setting would uncover knowledge that represented different knowledge types and would be derived from different sources.

The PRHO may manifest both codified and personal knowledge, propositions generated from codified knowledge and practice, knowledge generated from collegial engagement and from personal experiences. Most importantly, it was also recognised that some of this knowledge might be tacit and the clinician's behaviour or accounts might not always be demonstrative of the reasoning behind action, if indeed reasoning exists.

Conceptualising 'knowledge' as a product of the context in which it is used was extremely illuminating and further clarified findings from the 'risk' literature. 'Risk' as a product of statistical calculations, models and theories and abstracted from real life, describes 'risk' as it relates to the academic context. Where 'risk' was described in terms of being controlled and managed via protocols and procedures it was arguably being framed within the organisational context. Most poorly conceived within the risk literature was how practitioners perceived and assessed the risks of practice when dealing with individual patients and situations. This would have described 'risk' within the practice context. This insight reinforced the usefulness of focusing on the practice rather than the academic or organisational context. What it might do is give a new perspective on 'risk', perhaps even explaining how it differed from 'risk' in other contexts which were better understood and certainly better researched.

It was recognised early on in the review that unravelling what types of knowledge were relevant to the PRHO study before it began was challenging; isolating particular types

of knowledge for studying, impossible. What appeared more feasible was to capture as complete a picture as possible of the PRHOs' judgement of risk and then to reconsider Eraut's work on professional knowledge in relation to the findings.

3.1.2 Cultural perspectives

The previous section focused on a cognitive perspective of professional knowledge. This is not the only way of viewing professional knowledge.

Professional socialisation is the process whereby those new to the profession are inducted into it and where values and roles are internalised and the norms of that profession are displayed (Du Toit 1995). It is concerned with the 'acquisition of the knowledge, skills, values, roles and attitudes associated with the practice of a particular profession' (Clark 1997, p.422). How one actually becomes 'socialised' is debatable (Morrison 1993; Howkins and Ewens 1999) but the perceived existence of a socialisation process does suggest that there is a body of knowledge to which a newcomer must be introduced and behaviours which a professional is expected to demonstrate. The importance of gaining this knowledge is evident in the following explanation of socialisation:

> 'a process by which newcomers to a group worked to make sense of their surroundings and came to acquire the kinds of knowledge which would enable them to produce conducts which allowed established members of that group to recognise them as competent'.
>
> (Dingwall 1977, cited in Howkins and Ewens 1999, p. 42)

If competence is linked with acting appropriately and demonstrating the norms and behaviours of the professional role, this makes acquiring this type of knowledge important for success within the practice context.

But what is this body of knowledge within the profession of medicine? As socialisation is implicitly learned (Eraut 2000b) the knowledge covered under socialisation may only be tacitly known. Although there are significant studies about socialisation within the health professions there are limited key studies that focus on the culturally derived

knowledge needed to work within it.

3.1.2.1 Culturally derived professional knowledge in medicine

There are two significant works which, although they describe the culture of medicine, do give insight into the knowledge needed to work effectively within it: 'Boys in White' (Becker *et al.* 1961) and more recently 'Making Doctors' (Sinclair 1997).

'Boys in white. Student culture in medical school' by Becker *et al.* (1961) describes the culture in which medical students worked and learned within a medical school. The theoretical perspectives that framed the study were cited by the authors as sociological theory and symbolic interactionisms. The authors stated that they adopted an open theoretical theme within this theoretical framework, using participant observation as the predominant method along with formal and informal interviews.

The Becker study, now old, examined an American medical school system and therefore its applicability to current British medical education is perhaps questionable. Becker's study is also limited in terms of the clinical context as it focused only on medical students and not newly graduated professionals (PRHOs). Despite these issues, Becker's work does give valuable insights into the profession and ones that appear to have continued currency.

Becker *et al.* describe how students in the early years of medical school learned how to be medical students rather than clinicians. The reasons for this were firstly, as 'junior' medical students, they learned the theoretical basis of medicine and therefore were not in contact with clinicians but academics. Secondly, the medical students knew that in order to achieve 'clinician' status they needed firstly to succeed as medical students. Becoming successful as medical students was therefore what they focused on.

In their first year of medical school the students initially felt that they had to 'learn it all' but this became impossible to achieve due to the vast amounts of information that they covered. The freshmen had difficulty in differentiating between what did matter and what did not because of the lack of clinician contact. They therefore adopted a perspective that guided their learning at this time of 'What the Faculty wants us to

know'. The perceived desires of the Faculty became paramount as the medical students knew that they were the gate-keepers to the medical student being given the opportunity to become clinicians.

When starting their third year, the medical student did engage in clinical work but Becker *et al.* observed that they only partly engaged with the culture:

> '....working in the medical centre, they became involved in medical culture and might be expected to begin to internalise it; but... whilst medical culture influences student culture... it operates only within the limits permitted by the students immediate situation.'
>
> (Becker *et al.*1961, p.191)

If this is true of today's medical students, becoming a PRHO was the first time that they fully engaged in being a clinician.

What the above demonstrates is the importance, very early in medical school, of becoming strategic. The student was presented with too many variables and too much information for them to successfully master them all. Therefore they worked out (whether consciously or unconsciously) what was important in different instances.

The two values that Becker *et al.* cited as important within the medical culture were 'responsibility' and 'experience'. Although medical responsibility came in many forms, the student gained insights into the complexity of these notions when exposed to concrete cases on the wards or through case presentations by more senior doctors. They were made aware of the potential for death and damage to patients by clinician intervention, from both complex as well as simple procedures, and what the acceptable and unacceptable errors were within medicine. Perhaps this also included learning about 'risk'.

Great importance was placed on the value of experience and the personal knowledge gained from experiencing things for oneself. Because experience and responsibility were so important, those with more clinical experience and more responsibility were

most revered.

A more recent study exploring culturalisation / socialisation was 'Making doctors. An institutional apprenticeship' by Simon Sinclair, investigating students at a medical school in London during 1993/4 (1997). The aim of his book was to give 'a full account of the process of being made a doctor' (p.13) and the findings as exploring 'general professional dispositions' (p.26 and p.316). Sinclair described the study as ethnographic, explored from an anthropological perspective and using participant observation. A questionnaire was employed but only to fulfil the requirements of the Ethics Committee and not the aims of the study. Unlike Becker *et al.*, this study was recent, conducted in a British medical school and included the pre-registration year. The data collection period took place over one year. Observations were made of all medical students expect for those in the fourth year.

Sinclair describes medical training in terms of 'stages' (analogous to the theatre rather than time) to depict the areas in which medical students need to function and know how to perform. Sinclair refers to these as the official and unofficial stages with each having a front and back-stage. The official front stage was concerned with highly visible activities that related to being and becoming a qualified doctor, whilst the official backstage was concerned with the same pursuit but through activities that were less formalised and less visible to the establishment, such as studying and working together towards assignments. The unofficial was concerned with being part of 'student culture' whether in front stage activities such as taking part in sports or the back stage activities like the student bar. The official front and back-stages required different behaviours to 'perform' successfully within them.

Initially the official and unofficial stages had equal weighting in the pre-clinical years but the official became more dominant in the clinical years. Perhaps this change illustrates the demands of the clinical years, reducing the time available for unofficial front-stage activities.

Sinclair describes the dominance of the official stage in the pre-registration year. The prominent arena for front-stage activities was the ward rounds with his team while the

back-stage was represented by clerking patients. The PRHOs were less engaged with scholarly activities than clinical undergraduates and spent more time working alone. The importance of discussion and questioning in the learners' socialisation process were apparent. This was where experienced clinicians described their clinical reasoning by speaking out loud what they were doing and why. Question and answer sessions also informed the medical student of the language they had to use, what was acceptable and unacceptable to say and what was considered the 'correct' way of 'thinking', both front and back-stage.

Sinclair describes the medical students shifting from 'Personal Idealism' at the beginning of their studies, towards 'Professional idealism'; a shift from wanting to be a good and caring doctor towards wanting to be a safe and competent doctor. Other shifts were also described. As undergraduates, the medical students were encouraged to act co-operatively and work within teams. This changed within the clinical years towards competition, for example, being the first to answer a consultant's questions correctly. In the pre-registration year, there was a mixture of co-operation and competition as the PRHO needed to work with the team in a co-operative way but needed also to ensure his work was seen as a priority.

As with Becker's study, Sinclair found 'responsibility' and 'experience' important and whilst in the pre-clinical years 'knowledge' was important (because there was no experience or responsibility), in clinical practice 'knowledge' became secondary to experience. Sinclair describes how PRHOs began to use their experience to govern their decisions and how, as experience outranks knowledge, they became more reliant upon, and were more certain of, knowledge gained from experience. To relate this finding to Eraut's work, this may actually describe a shift away from dependence on codified knowledge within an academic context towards the development of personal knowledge within the practice context.

Along with 'idealism', 'experience' and 'responsibility', the final perspective explained by Sinclair was 'economy'. 'Economy' was deciding what to do, what to leave or when to tell the truth. This helped the PRHO to do their job and work in uncooperative situations.

> '... they simply work out the most efficient way of discharging their Responsibilities, making their own mistakes and learning from them how best to work the system; questioning it, even if possible, takes up time.'
>
> (Sinclair 1997, p.272)

Sinclair saw the pre-registration year as mainly administrative with the PRHO enacting the wishes of the consultant. However, even though the PRHO was performing duties for another, the PRHO still had to take responsibility for those actions and for carrying them out.

Sinclair's study supported the findings of Becker *et al.*. What Sinclair also illustrated in his study was the importance of various stages and how these can be viewed as a developmental journey towards becoming integrated into the institution of medicine. The conceptualisation of clinical practice into front and back stages had resonance when applied to my own experiences of talking to doctors and observing them on the wards. It also again illustrated the complexity of the different arenas that the medical students / PRHOs need to learn to function within.

3.1.2.2 The perceived relevance of these cultural perspectives to the PRHO study

Within a profession it is recognised that there are commonly held beliefs, values, traditions, policies, attitudes and behaviours held by its members, which are characteristic of the profession and can be viewed as socio-culturally bound. These related sets of characteristics are built from rites and rituals, patterns of communication and behaviour and perceptions of what is expected from a member of that profession. These give a consistency to outlooks and behaviours and perhaps make professional activities less uncertain. Knowledge of 'risk' could be socio-culturally defined and mediated.

New members of a profession must learn these and their appropriate application within different situations. The knowledge needs to be learned but might not necessarily be taught.

The importance of socio-culturally derived knowledge suggests a central role in the professions with regard to what is often referred to as 'the hidden curriculum'. This is often portrayed as some sort of subversive act on behalf of the profession towards its juniors but perhaps 'hidden' only because it requires implicit learning or can only be expressed tacitly.

Professional socialisation and enculturalisation was viewed as imparting important knowledge to novice practitioners as they inform the novice about prescribed boundaries and accepted ways of functioning within the chosen profession. The knowledge appears fundamental for functioning within the clinical context but, as with some of the knowledge described by Eraut, is likely to be difficult to capture in isolation from other knowledge. It may also be difficult for the PRHO to articulate it or even know it exists.

3.1.2.3 Collective knowledge

A type of knowledge that cannot be thought of in either cognitive or cultural terms is 'collective knowledge'. This knowledge is generated by each team member bringing to a situation specific knowledge but through working together, creating an 'understanding' which they could not achieve independently or maintain without each of its team members (Boreham 2000). The knowledge held by a group or team is greater than the sum of knowledge held by all its individuals. It exists whilst that team exists and will not necessarily continue if the team is disbanded.

Boreham relates collective knowledge to risky situations:

> 'Risky situations (such as delays in beginning treatment) were attributable, not to lack of individual knowledge or skill, but to lack of collective understanding of how the individuals needed to interact with each other'
>
> (Boreham 2000, p.505)

From this perspective, problems concerning patient care are viewed and addressed as a clinical team issue rather than as a deficit within an individual member of the group / team. This relates well to Douglas's 'hierarchy' where there is necessarily collective

responsibility when things go wrong or mistakes are made.

3.1.3 Professional knowledge as defined by medicine

As in the previous chapter, the current medical literature has been used to demonstrate the continued relevance of these issues within medicine.

There appears to be little engagement in medical education with the nature of clinical knowledge and very little work actually extending conceptually beyond the catchall phrase of 'knowledge, skills and attitudes'. For example, Dixon-Woods *et al.* (2002) state in their discussion that they have '... presented a description of an intervention in medical education designed to encourage students to develop appropriate knowledge, skills, attitudes and values' (p.437). Jones *et al.* (2002) start their methods chapter with 'In order to obtain comparative data on the perceptions of the knowledge, skills and attitudes of the Manchester graduates ...' (p.19). A qualitative study looking at descriptors of borderline trainees (Wilkinson and Harris 2002) viewed the emerged themes of 'basic knowledge, clinical skills, language ability and recognition of common clinical signs' (p.467) within the knowledge, skills and attitudes mantra.

The frequent use of this triad of terms does not necessarily mean that the profession is unaware of the multi-faceted nature of the knowledge needed by clinicians. In identifying the learning outcomes needed to act as the foundation for 'competent and reflective practitioners', Simpson *et al.* (2002) define the three essential elements in the creation for this type of practitioner: 1. what the doctor is able to do; 2. how the doctor approaches his practice; and 3. the doctor as a professional. The learning outcomes identified in the article cover topic knowledge, the practical skills needed to do the job and, of course, 'attitudes' but also the clinician's need to make judgements and select the appropriate knowledge, skill or behaviour for each individual clinical situation and patient. The learning outcomes also include the need for personal awareness and efficacy. This would suggest an appreciation within the profession that the activities of a doctor are complex but are frequently expressed using rather simplistic labels.

One specialty that has engaged with professional knowledge is anaesthetics.

Smith *et al.* (2003) conducted what was termed an ethnographic study on 'expertise' in anaesthetic practice. The study was designed to explore this knowledge and its acquisition. The perceived need to explain and justify adopting a 'qualitative study' approach (rather than quantitative) is perhaps illustrative of the unusualness of this study within medicine. The study used observations and interviews. The observations involved a purposive sample of different types of anaesthetic practice within different contexts and focused on both trainees and consultants. The observations were conducted over a one year period and data was collected over three blocks of time. The interview data were generated from twenty-one individuals who were all part of the anaesthetic team and analysis was by thematic content analysis.

This study's focus appears relatively unique within medicine and laudable in its attempts to conceptualise an important aspect of professional practice. However, there are limitations. The interviews capture people's perceptions of expertise of which some, unavoidably, would not be accessible for discussion because of its tacit nature. More questionable is how visible "professional knowledge" or "expertise" is through observation or how this method picks up "cognitive density" as it claims to do. Other issues relate to the notion of 'expertise' and 'expert', two terms used throughout the paper and which appear (contentiously) to be used synonymously. The interviewees were trainees, nurses and support staff and only included seven consultants. This would not necessarily have been problematic if the interviews had not "typically" focused on personal practice. As a consequence, when, in the results, the authors talk of 'expert anaesthetists' the reader is left wondering who this group were and who could be considered as having 'expertise'? Their findings were actually descriptive of one element of expertise (the use and handling of data) rather than 'expertise' per se.

These issues suggest a somewhat simplistic and under-conceptualised study. Unsurprisingly, in the discussion the authors concluded that the phenomenon was more complex and more subtle than they had at first envisaged.

Despite the above limitations, what was interesting about the accounts was the practitioners' descriptions of a constant state of cognitive flux when managing patients. They described continual assessments and interpretation of the patient's state and

modifications to practice as a result of these readings / feedback. These were got at through the interviewee's descriptions of their practice and by telling stories about their patients. The researchers used these stories to make sense of the practitioner's practice.

3.2 Learning

The following section will briefly consider the acquisition of professional knowledge. This area of study, unlike professional knowledge, is frequently researched and many examples are from medical education.

3.2.0.1 Formal, informal and non-formal learning

Formal learning is characterised, according to Eraut (2000a), by prescribed, organised learning with a teacher or trainer. It has specified outcomes and success means either accreditation or the gaining of qualifications. This clearly does not describe the pre-registration experience described in the introductory chapter. SCOPME (1994) refers to doctors receiving informal and opportunistic learning (without defining or differentiating between these terms) and one might suggest that these better describe the pre-registration year.

Bitwood (1988) uses the terms formal and informal learning to illustrate the difference between learning in schools and in places such as museums and parks. Parallels can be drawn between these and clinical work. Bitwood views informal learning as characterised by the inability to control what the learner learns or how long the learner remains with the stimulus. With informal learning, even if experiencing the same event, the learner takes away and remembers different things from the experience. Bitwood highlights the importance of the social aspects within informal learning environments (whether you were with your peer group or with teachers) as these guide a learner's actions and behaviour. Unsurprisingly, what is not explained is how individuals know how to act or how knowledge is acquired.

Eraut's work on non-formal education is concerned with learning which 'contributes to significant changes in capability or understanding or is associated with non-routine aspects of a new task or encounter' (Eraut 2000b, p.12). He questions the use of the

term 'informal' learning as it carries too many other connotations and suggests that 'non-formal learning' should be used instead. These concerns with the term 'informal' are not evident in later publications (Eraut 2004).

Garrick (1998) criticises other authors' attempts at differentiating between 'incidental learning', 'informal learning' and 'formal learning' because the boundaries between the terms are man-made and therefore unlikely to be accepted by others who do not share the author's particular perspective. There may be another reason why this split is less useful in practice. Although 'non-formal' may describe the learning experienced in the clinical setting, the knowledge generated from clinical practice cannot be viewed as only a product of what is learned on the ward or in the clinic. Boud, Cohen and Walker (1993) argue that because experiences are connected to other experiences in such complex ways, it would never be possible to isolate and analyse one experience from another. Perhaps this is also true of formal and non-formal learning, with each shaping the knowledge generated in the other.

As with previously reviewed literature, the acquisition of professional knowledge can be divided into two distinct perspectives: viewing learning of professional knowledge as a cognitive process or viewing it as a socio-cultural process.

3.2.1 Learning as a cognitive process

Learning is defined by Eraut as:

> '...the process whereby knowledge is acquired. It also occurs when existing knowledge is used in a new context or in new combinations: since this also involves the creation of new personal knowledge, the transfer process remains within this definition of learning'
>
> (Eraut 2000a, p.114)

This suggests a cognitive process happening within an individual but not always as a conscious process.

Eraut *et al.* (2000a) describe three levels of intention to learn within non-formal

learning. These are 'implicit learning', 'reactive learning' and 'deliberative learning'. Implicit learning is not a conscious process in terms of what is being learnt or in the act of 'learning'. However implicit learning can lead to explicit knowledge. Reactive learning is unplanned and impromptu but the learner is aware that they are learning even if it requires time to appreciate what it is that has been learned. Deliberative learning, as the name suggests, is intentional and the result known. As with knowledge, these categorisations suggest that learning can be both explicit and implicit. The following are accounts of how clinicians are thought to acquire knowledge.

Based in cognitive psychology, Schmidt, Norman and Boshuizen (1990) suggest that learners go through a staged development of knowledge structures which underpin their behaviour. The stages of development are as follows:

Stage 1 - Development of elaborated causal networks. This starts at medical school with propositional knowledge being organised into a network so that the learner will make sense of information and remember it. These become more elaborate as more information is acquired from experience. The authors explain the use of 'causal propositional networks' at stage one which signify the development of constructs i.e. the relationships between objects or events. Asking students to recall everything they know about a particular topic, say the authors, will make these networks overt.

Stage 2 - Elaborate networks are compiled into abridged networks. The second stage represents a simplification of the elaborate causal networks into models, where seeing patients with specific diagnoses allows the learner to see similarities in signs and symptoms. It allows the learner to make quicker decisions and with less effort.

Stage 3 - Emergence of Illness scripts. The networks are further refined to become something similar to lists. These lists are contextually rich and can be idiosyncratic to particular clinicians but allow them to recognise disease patterns and the boundaries of normal within a group. The use of these ordered lists or scripts allows the clinician to remember lots of information because they can group information into meaningful clusters and identify what needs to be remembered or what is unimportant. Illness scripts exist because of many previous interactions with patients so that generalised

features, outcomes etc. are available to them.

Stage 4 - Storing patient encounters in instance scripts. The description of these has parallels with Eraut's descriptions of impressions in episodic memory (Eraut 2000a) where the clinician holds hundreds of patient cases in their head, stored as individual scripts for particular patients. When other patients with similarities in their scripts are encountered, the clinician might recognise similarities in patterns between the scripts. Schmidt *et al.* suggest that clinicians have both illness scripts and instance scripts which they use in practice. The authors do not give any indication as to how long it takes for a clinician to develop a scripted approach to practice.

As learners progress through the stages, previous knowledge structures are not dismantled but can be called upon when needed. For example, the experienced doctor may not need to use their knowledge of patho-physiology to understand what is wrong with a patient but this information can be brought to mind (if not readily!) when needed. The expert works from self-devised mental scripts and checklists when working in a routine way but when faced with the unknown or difficult encounter will switch to more deliberative thinking.

Whilst Schmidt, Norman and Boshuizen describe the development of cognitive skills, Dreyfus and Dreyfus (1986) include both cognitive and psychomotor skills in their seminal work on skill acquisition. The Dreyfus model describes the development from 'novice' to 'expert' and differentiates between personal and codified knowledge by the use of the terms 'know-how' and 'know-that'. Know-how comes from practice and experience and know-that from facts and rules.

The Dreyfus model suggests five stages in skill acquisition that lead to 'qualitatively different perspectives of a task and/or mode of decision-making as his skill improves' (p19). This model supports the move from explicit to implicit processing where, as the learner becomes more skilled, the systems that govern the practitioner's actions become more intuitive and unconscious.

The five stages are as follows:

1. Novice –The activity, which requires skill, takes up the novice's full attention and they follow the rules that they have learnt. The work is rule bound rather than context bound and because of this, the novice attends to the activity rather than the overall situation. Having rules is important for a novice because it allows them to gain experience.
2. Advanced beginner – Having had concrete experiences, the advanced beginner begins to recognise recurrent features and starts applying rules where applicable rather than in every instance. They begin to consider more context-free facts and more sophisticated rules. They start to conceptualise the larger notion of 'the skill'.
3. Competent practitioner – The competent worker has had enough experience to begin to act strategically. By adopting a plan, they begin to ignore extraneous issues and focus only on selective elements of the task. This simplifies things for the learner when performing the skill but devising a plan is difficult and takes considerable effort. It is also the start of the learner/practitioner becoming emotionally attached to outcomes.
4. Proficient – Here the practitioner has had so much experience that their pattern recognition extends to plans to manage the case. They are fluid and rapid in their behaviour and this represents the beginning of intuitive ability. Having had many previous experiences, new cases and events trigger previous plans that have worked. They do this without having to deconstruct the component features. Dreyfus and Dreyfus refer to this as 'holistic similarity recognition'. Although the proficient worker intuitively organises and understands the task, they are still analytical in what they are doing.
5. Expert – The expert works and knows what to do intuitively without applying conscious decisions. The processes they employ are so unconscious they may have difficulty explaining why they have arrived at conclusions or decisions. They are not solving problems or making decisions, they are doing what 'they do'. Their behaviour is governed by their experiences, not rules, but they can switch to more deliberative thinking if something 'feels' not quite right. However they do not problem solve. In these instances, they are critically reflecting on their intuition not the skill, per se.

The Dreyfus model recognises that not everyone becomes an expert but does not describe why people do not progress to this level or what stimulus is needed to be in place before this, or any of the other stage, is reached. For this reason the Dreyfus model may better be described as a typology of abilities at pre-determined levels rather than the acquisition of those skills: an analogy would be the difference between focusing on the contents of a drawer rather than the process of filling the drawer with its content.

The Dreyfus model, as with Schmidt *et al.,* was helpful in gaining and understanding of the different ways in which a PRHO may differ from an experienced clinician and how the findings of studies on experts or experienced clinicians, or indeed medical students, may not be directly applicable to PRHOs. Newly graduated but completely engaged with the practice context, they were perceived as different from either medical students or their more experienced seniors. Consequently, there were no significant studies on professional practice (except for elements of Sinclair's work on culture) that could be directly and unquestionably viewed as applicable to them.

3.2.2 Learning as a socio-cultural process

Socio-culturalists see knowledge and the process of learning as influenced by the world in which an individual has lived and lives. Learning is also affected by the context in which the knowledge is situated and where learning occurs. From this perspective, learning is thought of as socially mediated with knowledge and understanding derived from negotiating meaning within a culture as opposed to being individually constructed within a person's head as in cognitive perspectives.

Jean Lave and Etienne Wenger (1991) suggest that rather than considering learning as a specific type of activity that it is viewed as a component of social practice and inherent within every activity. As such, knowledge is continually being refined and developed through experience. One cannot have a 'decontextualized learning activity' as placing an activity in a different time and place inevitably changes it. It is this 'change' that is referred to as learning (Chaiklin and Lave 1996). From this stance 'learning' becomes much more akin to those within a community gaining understanding

and knowledge through their interactions and experiences with one another. By participating, one's understanding is changed. Situated learning also includes the construction of identities and roles within the 'community'. In terms of medicine, this may include how to work safely or, to draw on Sinclair's terms, act responsibly or economically.

Central to situated learning is Lave and Wenger's theory of legitimate peripheral participation. This describes the relationship between novices and their masters, their different roles, how work is performed and how knowledge is shared. To allow novices or newcomers to gain 'knowledge', those who advocate 'situated learning' theory believe that the learner or novice practitioner must work within real and meaningful situations (legitimate) but not with all the responsibilities, or undertake all the activities expected of a master (peripheral). Legitimate peripheral participation relates well to medical training because it describes the junior taking an increasingly active role and more responsibility as their training progresses. Whilst doing this, the novice medical student or PRHO is able to observe and interact with all grades of doctors, including consultants. From this the learner knows what the end point in their training is and what is important about their practice in relation to others.

> 'There are strong goals for learning because learners, as peripheral participants, can develop a view of what the whole enterprise is about, and what there is to be learned. Learning itself is an improvised practice: a learning curriculum unfolds in opportunities for engagement in practice. It is not specified as a set of dictates for proper practice.'
>
> (Lave and Wenger 1991, p.93)

Being 'legitimate', means that the novice has a role that is perceived as important and relevant to all participants. The learner absorbs the job and the culture by being an active part of it. It gives exemplars, behaviours, insights and a sense of the 'finished product'. For these theorists, the role of stories are of major importance, not because a novice can necessary learn from these stories, but because from the stories they 'learn to talk as a key to legitimate peripheral participation' (Lave and Wenger 1991, p.109) and take part within the community of practice.

Being peripheral is viewed as a positive thing for a junior because whilst they gain the above, they can work within a system that protects them from full responsibility. Lave and Wenger (1991) suggest that 'peripherality' is also less demanding in terms of time and effort. However, by doing what ought to be done, the junior is unlikely to receive feedback. It is only when they do not work within the confines of what is accepted as being their role, or execute it badly, that comments are made. If one is fulfilling one's role and participating there is no need for feedback.

The work of Lave and colleagues describes how socio-cultural influences affect how knowledge is acquired and shaped. Lave and Wenger argue that if one bases theories of practice only on psychological perspectives, one will not be able to explore the relationships between activities and culture and how systems and communities relate to one another. Researching within situated learning means that activities need to be understood in terms of the social world of practice and learning within contexts. It also challenges the distinction and separation, as has been done in this chapter, of 'learning' from 'practice'.

3.2.3 Learning as described in medical education literature

Empirical studies within medical education about how clinicians and medical students learn is conceptualised most frequently as a deliberative process. Learning is often linked with the teaching process. For example, task-based learning, problem-based learning (PBL) and E-learning are all terms currently in common usage within medical education but actually represent a pedagogical account about the acquisition of knowledge. Consequently, these were perceived as of limited value in understanding the acquisition of knowledge (via non-formal learning) in the workplace.

The following paper is presented as an illustration of the over-simplification with which learning can be conceptualised within medical education.

Strømsø's *et al.* (2004) paper is entitled 'Changes in student approaches to learning with the introduction of computer-supported problem-based learning'. It sets out to measure the effect a change in context would have on medical students' perceptions of

'learning' and what the researchers describe as 'self-regulated learning'. The change in context described by the authors was problem-based learning, conducted whilst the students were in medical school and then out on placement. Sixty-one students took part in the study and were given a questionnaire to complete before a clinical placement and then again twelve weeks later when they returned to medical school.

The questionnaire was made up from sections of other questionnaires and measured ICT proficiency and use, the changes in 'approaches to learning' which where related to the change in the PBL context as well as the relationship between these two. There was little change between the before and after scores (medical school or placement) and the authors themselves came up with many reasons why only minor or no changes were detectable between the two data.

There might be a number of important assumptions in this paper. The first is that learning can be (and had been) captured by a specified number of features. Secondly that these could be measured via the students self-reports of activity or through their perceptions. Underpinning this was the belief that 'learning' was stable enough to measure and that only the context of which PBL was practised (as the independent variable) would consistently alter these perceptions over a 12 week period. It is unlikely that the confounding variables would have been equalised by only 61 individual students within different clinical placements.

The above paragraph starts on a cautious note. The reason for this is that it is difficult to actually work out what constitutes 'learning' in this study. The objective was 'to study changes in student approaches to learning' (p.390) but although PBL is described briefly there is no perceived need to consider what is meant by 'learning' in this instance. Arguably what the study predominantly focuses on is a teaching strategy and how the student's procedural approach to it might change when administered in another context. The term 'learning' remains obscure.

3.2.4 Overview of professional knowledge and its acquisition

This review identified two predominant ways of viewing professional knowledge and its acquisition; as a product of the individual or as a social phenomenon (generated and

held collectively by a profession). Researchers appeared to adopt one or other of these stances, with cognitive perspectives predominant. Although research appeared to split these perspectives, each represented important ways of viewing practice. It was apparent that by adopting one perspective in favour of the other, vital components of the clinical context would be lost or remain hidden. Both obviously had relevance to the practice context and when studying what influenced clinicians within an authentic clinical setting.

This review gave insight into the complexity of researching knowledge and 'learning' and offered the view that professional knowledge was not a phenomenon but a set of phenomena. Knowledge might not be fixed and stable but continually being refined and influenced by the vagaries of context, past experiences (both formal and non-formal), how much the individual attended to previous experiences and by the values he may hold as a professional. Finally, although aspects of professional knowledge are being described and mapped by people such as Eraut, there was an accepted view amongst many theorists that some elements may always be speculative and remain unknown because of their complexity and tacit nature.

Literature, describing the differences between how novices and experts clinicians thought and worked, identified a gap in the literature as to the professional knowledge held by PRHOs as non-experts but not complete novices. Also, unlike medical students, who were described as only partly engaged with the clinical context, PRHOs ought to be engaged fully with the practice context and with medical culture.

The professional knowledge needed to work within the practice context appeared largely unexplored in the medical literature. Perhaps the complexity and difficulty of capturing often implicitly learned knowledge, some of which would remain tacit and personally constructed, explains why this was the case. It is speculated however, that conceptual work on practice is not a favoured activity of medical education even though the majority of training occurs on the ward and learning is mediated by this context.

3.3 Clinical Practice

Clinical practice is described from two different perspectives: as a conscious deliberative process or as an intuitive, tacit response to a situation or context. The cognitive processes associated with practice are variously labelled and often aligned with one or other of these two perspectives. These issues are discussed in the following section.

3.3.1 Perspectives and terms

Donald Schon (1983) describes how a model of 'technical rationality' is the predominant perspective of professional practice and portrays a very ordered view of how it works; the practitioner follows known rules and laws and applies these to his work. Schon recognised that this was an incomplete explanation of practice as it did not take into account how an individual worked competently within diverse or novel situations. For others, technical rationality is viewed as reducing clinicians to mere processors of information (Fish and Coles 1998).

'Professional artistry' (again Schon's term) describes a very different way of viewing practice; not as stable or concrete but as temporary, dynamic and interpretative. Professional activities become informed by judgement rather than by the application of rules. As such, professional artistry makes the clinician more adaptable and therefore more able to function in the 'real world' of practice. Whilst Schon explains the cost of adopting the technical rational model, Fish and Coles (1998) condemn it.

It is clear that neither a model of technical rationality nor a model of professional artistry describe completely how a professional works in practice. However, the previously cited Dreyfus model was thought to offer a credible account of the relationship between the technical rational model and the professional artistry model. The novice or student learns and works in a way that is characteristic of the technical rational model. As they become more experienced clinicians, their practice exemplifies the professional artistry model. That is to say, the work is characterised by judgements and intuitive behaviour rather than prescribed action and deliberative decision-making.

But what is meant by judgement and what is the relationship between it and decision-

making?

Within a medical setting, decisions can be defined as 'a resolution to do something or a resolution to behave in a certain way' (Schwartz and Griffin 1986, p.9) and suggests that there are choices to be made between options. Dreyfus and Dreyfus (1986) split decision-making into 'unstructured' and 'structured'. Structured decision-making is characterised by mathematics and puzzles, where the variables are constant and known. This logical and rational approach is referred to by them as the 'Hamlet form' of decision-making and relies on knowing the facts and rules. Alternatively, in unstructured decision-making, there are many variables and contexts to take into consideration and here an individual draws on his own experiences.

If decisions are thought of as the end point of deliberations, judgements are the critical faculties or evaluative processes used in those deliberative processes that consequently inform the decisions (Schwartz and Griffin 1986). Dreyfus and Dreyfus (1986) see judgement as an ability to interpret, whether consciously or unconsciously, what is important about a situation. Judgements therefore require more than the application of rules. They also require inferences to be drawn and evaluations to be made.

Fish and Cole (1998) distinguish between four 'broad areas' (p.279) that represent a conceptual continuum across different types of professional judgement. Intuitive judgement, as the term suggests, refers to judgements made without thinking or drawing on any explicit theory although they are inevitably influenced by personal theory. In these instances the clinician would not be able to explain his reasoning. Strategic judgements are where different practical options or possibilities to a problem are considered but these are still drawn from the clinician's every-day routinised practice. The clinician may be able to justify his decisions but this justification would not have actually led to the making of the decision. Reflective judgements are still working within the clinician's own scheme of options but thought through in a reasoned way. They therefore require the practitioner to consider the complexity of the alternatives open to him. Here both personal and formal theories are used and consequently the practitioner can explain and justify his actions. In intuitive, strategic

and reflective judgements the practitioner would not question the outcome, only how it is to be achieved. With deliberative judgement this is not the case and the 'end point' remains open, with the clinician engaged with the question of what ought to be done. This therefore becomes more complex than selecting from known alternatives but opens up options that are perhaps not part of the clinician's habitual behaviour. The authors see these four types of judgement characterised by the questions 'What do I do now?' for intuitive judgement, 'What might I do now?' for strategic judgement, 'What could I do now?' for reflective judgement and 'What ought I to do now?' for deliberative judgement.

The preceding paragraphs suggest some clarification of terms: 'decision' is an outcome and 'decision-making' a broad term used to describe cognitive processes employed to arrive at that outcome. 'Judgements' inform the decision-making process by allowing the practitioner to make distinctions between options and assess the merits of each in relation to the alternatives. Each of the cognitive processes underpinning 'action' (decisions, decision-making and judgements) can occur consciously or unconsciously.

The approach to researching medical clinical practice has often been to view it as a rational cognitive process (Round 2001). This would suggest clinical problems are perceived by the profession (or at least by those involved in practice research) as measurable, predictable and controllable, and doctors' thinking as considered and linear. From this stance the assumption is that clinical practice conforms to the axioms of the positivist paradigm.

Despite this allegiance, the success of movements such as evidence-based medicine (EBM) has been more evident in the talk of practice than in its application by individual practitioners (Armstrong 2002; O'Donnell 2004; Powell-Cope *et al.* 2004). This suggests that practice is not as straightforward as EBM may imply and there is more to implementation than just considering it a good thing (Dopson *et al.* 2003).

The challenges of applying 'evidence' to practice are apparent when one considers the many, many variables a practitioner needs to take into account in implementing it and

where general principles or rules from evidence never fit neatly, or relate directly to individual patients or contexts (Cronje and Fullan 2003; Pope 2003). So the problem with implementing EBM may be partly explained by the complex and multi-dimensional nature of practice but another explanation, drawn from Aristotle, may account for the lack of actual uptake in practice. It suggests that EBM only concentrates on one aspect of rhetorical persuasion – logos ('the clarity and logic of the arguments and its supporting evidence'), whilst for it to be effective it needs the other two components - pathos ('the power to stir the emotions, beliefs, values, knowledge and imagination of the audience and generate empathy') and ethos ('the credibility, legitimacy and authority of the speaker') (Van de Ven and Schomaker 2002, pp.89-90).

The authors cited in the previous sections on professional knowledge and its acquisition, support and add to Schon's challenge of the technical rational model being applicable to how experienced clinicians practice (Eraut 1994; Schmidt *et al.* 1990; Dreyfus and Dreyfus; Benner 1984; Lave and Wenger 1991). From different disciplines each of these authors describes the experienced clinicians' potential for working intuitively, instinctively and automatically.

As with risk, professional knowledge and learning, clinical practice was viewed from contra-perspectives.

3.3.2 Thinking in practice

Argyris and Schon (1974) describe the actions of the practitioner as being governed by theories (theories of action). As 'theory', theories of action must have 'generality, relevance, consistency, completeness, testability, centrality and simplicity' (p.4). Perhaps if described today, 'theories of action' would be referred to as propositional knowledge. They argue that asking an individual about their practice would disclose his espoused theories whilst observing it allows the researcher to construct the actual theories being used (theories-in-use).

Donald Schon's describes practitioners 'knowing-in-action' where the criteria for action are not known by them nor are they working within known rules (1983). The know-how is in the doing. Although he did not give evidence to support it, Schon believed that

because practitioners become so specialised and reliant on this knowledge, they are always in danger of becoming fixed and rigid in their ways and more likely to make errors and mistakes. To prevent this happening, the practitioner needs to reflect on their practice. Reflection-in-action refers to thinking whilst doing and Schon saw it as crucial when practitioners were working in situations of uncertainty, instability and in one-off situations where it was imperative that the practitioner could think about what he was doing whilst actually doing the job. 'Reflection-on-action' refers to reflection after the event.

There are many gaps in Schon's theory about reflective practice and the reflective practitioner and as a consequence, viewing it as a comprehensive descriptor of how learning occurs or how clinical practice should be conducted, is questionable. Eraut (1994) challenges the theoretical underpinnings of reflection-in-action as Schon used only case studies and no other evidence to illustrate what he meant by these terms. Eraut also argues that Schon was so elusive about his meaning of reflection-in-action that it becomes whatever Schon wants it to be in that instance. Eraut concludes that what Schon was actually describing with reflection-in-action was meta-cognition and, with his promotion of professional artistry, Schon was 'principally concerned with developing an epistemology of professional creativity rather than a complete epistemology of everyday practice' (Eraut 1994, p.143).

Eraut (2000a) gives a much more complex explanation of how practitioners 'think' in practice and presents three modes of cognition that they may employ; analytic, intuitive and deliberative. The analytic mode needs sufficient 'evidence' or 'theory' for the practitioner to work through and interpret before applying to his practice. Also for this to occur, the practitioner needs to be willing and able to engage in this analytical process, to believe in the evidence or theory and view it in a way that makes it pertinent and useful to that situation. The analytic mode is not just used by those new or relatively new to practice. Experts are also said to use it when they find themselves in situations of which they have no experience or when they recognise that the outcome differs from what was anticipated. The intuitive mode of cognition needs the clinician to have had many similar prior experiences and to draw on their tacit knowledge rather than theory or research. As a consequence, as a mode of cognition, it is fast. For the deliberative

mode the clinician draws on his personal experience and evidence that is useful for that situation and for working through or sorting out problems. The deliberative mode is mainly an explicit process and is characterised by the clinician rethinking and re-framing the issue. The deliberative process relies upon the practitioner assimilating propositional knowledge and the particulars of the situation with their experience and judgement.

Eraut gives additional influences that affect the mode of cognition other than the practitioner, the context, how much 'evidence' is available or how complex the problem is. These are: the time available for cognitive processing as well as the multiplicity of factors vying for consideration and attention within a single situation. For me, Eraut's descriptions of thinking in practice had legitimacy.

In addition to being skilled in terms of solving or resolving problems, professionals also need to identify when 'a problem' actually exists. Dual Cognitive Architecture (Boreham 1994) gives insight into how this may happen and how a clinician may monitor his clinical work without necessarily expending significant cognitive resources. It also alludes to how a practitioner knows when he needs to shift to more analytical or deliberative modes of cognition.

The Dual Cognitive Architecture describes how professionals in practice process information. It proposes that thinking in practice is the result of two memory systems interacting with one another - the explicit (conscious, controlled) versus the implicit (unconscious, automatic). The explicit and implicit processes are seen to be complementary, with the explicit taking over when the implicit fails. The implicit is less taxing and prevents information overload but the explicit is necessary for novel or new situations. The interaction between the two systems, the shift from one to the other, presents as different patterns of thinking. Boreham labels these as 'Unconsciously controlled thinking', 'Regulatory thinking' and 'Consciously controlled thinking'.

Unconsciously controlled thinking, as the name suggests, is thinking occurring at an unconscious level and is acquired by practice and through experience. Regulatory thinking is the monitoring system which 'senses', when working within the implicit, that

something is not right or different and what physicians may report as 'a warning light' / 'alarm bells' going off. This process is important because it signals to the clinician the need to change from the implicit to a slower and more conscious level of processing - to the explicit. Consciously controlled thinking is manifest in abstract thinking, where the focus on one idea generates other connections, ideas and notions, although the individual may not know how these were brought to mind. Here the consciously thought about idea causes other thoughts to be triggered.

Boreham's ideas again challenge the traditional view of the practitioner dealing with problems (problem-solving) as a linear, controlled and ordered process where the clinician works out, by hypothetico-deductive means, the potential hypotheses and then tests them. Boreham describes a process where the diagnosis or solution comes to mind from conscious or unconscious clues. Only when the clinician is faced with new or novel situations or when the 'warning light' goes on, does the clinician move from this implicit system to the more laborious but conscious system of explicit processing.

Clinicians' having a sense of something not 'feeling right' is noted by others. Eraut refers to it as 'implicit monitoring' and it may be part of what Schon refers to as reflection-in-action. Within the Dreyfus model, implicit processing is recognisable at the stage of proficiency where the individual '...recognising, without conscious thought, the simple existence of the problem' (Dreyfus and Dreyfus 1986, p.30).

The literature also suggested that there might be differences in how various grades of clinicians view and interpret 'problems'. Benner (1984) noted variations in how nurses framed and resolved problems which related to years in practice. The literature also suggested however that although there may be differences between grades and between individuals, the 'culture' may ensure that there would also be standardised 'action'. For example, Becker *et al.*(1961) argued that in resolving or managing recognised problems, individuals knew what action to take because of the physical and social environment. It was only when there was a range of possibilities, options and alternatives that the individual developed perspectives. Even with these, if they occurred frequently enough, these too would become part of the practitioner's way of dealing with the social world.

3.3.3 Points taken from the clinical practice literature

As with previous sections, the clinical practice literature illustrated important epistemological differences in how clinical work was viewed by theorists and researchers. What was clear from the review was that practice was not always the rational, linear and deliberative process that some would suggest.

Completely rational and explicit thinking about practice was never congruent with my own experiences as a clinician; however, from my experiences as a clinical teacher, the intuitive and implicit workings of the professional artistry model was also viewed sceptically when applied to novice practitioners or for explaining every aspect of clinical work. The Dreyfus model on 'skill acquisition' was useful in conceptualising the relationship between the technical rational and professional artistry models. It explained why experienced practitioners were able, when the need arose, to adopt any of those 'stages' of thinking and working that the practitioner had previously passed through. The review also explained why juniors had limited strategies when faced with uncertainty or new situations. It did not give any indication as to where the PRHO grade related to these model or theories. Nor did it indicate the factors that governed PRHO judgements or decision-making within the clinical context.

The literature did make it obvious that clinical practice was a complex process.

Although there are important criticisms of Schon's work (Munby and Russell 1989; Eraut 1995), what was significant to me from reading his book 'The Reflective Practitioner' (Schon 1983) was the distinction he drew between 'problem solving' and 'problem setting'. It was significant because it appeared to mirror and explain further some of the issues that arose from the 'risk' literature.

By thinking of problems only in terms of seeking solutions (problem solving), 'problems' become defined, concrete and with boundaries. With these qualities, there is a potential for prescribed solutions. This focus on problem solving was pervasive throughout the medical literature and again gave little insight into the practice context.

> 'If it is true that professional practice has at least as much to do with finding the

problem as with solving the problem found, it is also true that problem setting is a recognised professional activity'.

(Schon 1983, p.18)

'Problem setting' considers how a problem is framed. Clinically, what constitutes a problem becomes bound by the clinician's perspective of it. This in turn influences what is perceived to be the desired goal, affects what decisions need to be made and what solutions are available. In order to solve a problem the clinician needs to recognise and understand the problem within that setting. The conceptualisation of 'problems' in this way makes their solutions less prescriptive but makes problem setting of paramount importance within clinical work. The medical profession's commitment to a model of technical rationality may explain why such a major component of clinical practice had been largely ignored.

'Problem setting has no place in a body of professional knowledge concerned exclusively with problem solving'

(Schon 1983, p.19)

3.4 Concluding section - Insights from the combined reviews

The review illustrated the potentially interpretive nature of the term 'risk' which meant that its meaning could not be assumed nor could I assert how it would be applied by a practitioner in the clinical context. Although there was considerable engagement within the medical profession with respect to the risk concept, the engagement appeared to relate predominantly to organisational and academic contexts. The term did have the potential to be used in multiple ways and illustrate personal, cultural, professional and socio-political agendas. It was just that no studies had explored what 'risk' meant to the clinician.

The review also indicated that there were likely to be multiple factors that influenced a clinician's response to any identified 'risks' but again, no studies were found that explored such factors. In fact the mapping of professional knowledge held by doctors was scant and with little specific reference to PRHOs. As a consequence, the area of 'risk judgements' on the part of this specific group of doctors, had not been researched.

Schon talked of making sense of a situation before one can solve it. For this study, the initial cognitive step for the PRHO appeared to be recognising the existence of a 'risk'.

> 'When we set the problem, we select what we will treat as the "things" of the situation, we set the boundaries of our attention to it, and we impose upon it a coherence which allows us to say what is wrong and in what directions the situation needs to be changed. Problem setting is a process in which, interactively, we *name* the things to which we will attend and *frame* the context in which we will attend to them'.
>
> (Schon 1983, p.40)

Schon's description of problem setting paralleled what was conceptualised in the previous review as the perception of 'risk'. 'Risk perception' as it was being used by me was thought perhaps to be part of a regulatory thinking process as described by Boreham (1994). 'Risk assessment' equating to judgement was the conscious or unconscious critical faculties or evaluative processes used to inform decisions.

Despite the usefulness of conceptualising the study in terms of perceptive and framing issues, it was felt that the phrases 'risk perception' and 'risk assessment' were likely to have specific and specialised meanings for the medical profession (and the PRHOs) and, as such, it was thought best to avoid these phrases. Benner's work had reinforced my awareness of culturally derived meanings for terms. She had started her study, applying the application of the Dreyfus model to nurses, using the term 'critical incident' in her interviews. She realised early on in her study that this needed to be changed. This term evoked in the nurses a notion of crisis, adverse events or problematic patients, rather than significant and memorable incidents which she had wished to capture. Perhaps 'risk' would do the same for PRHOs?

Some studies of professional knowledge used stories or narratives from clinicians to gain insight into the practice context and to draw inferences and meaning about practice from these accounts. For example, Schon, Benner, Fish and Cole. These were thought useful in terms of capturing professional knowledge.

Fish and Cole used the stories of health care professionals to help understand professional judgement by considering incidents which prompted the clinician to reflect. Garrick (1998) described narratives as functional for exposing not only the experiences of a practitioner but also how they interpreted and constructed these experiences within the social / cultural world they inhabited:

> '.. they experience informal learning in the everyday so that their stories represent an intersection between discourses and lived realities: they *speak the tensions.* Their stories are discursively constructed at one level and they live them at another'
>
> (Garrick 1998, p.2)

The labelling of a situation as a 'risk' was viewed by me as illustrative of those tensions and although any narrative would not be an un-interpreted account of the lived reality, the narratives were perceived as being descriptive of how 'risk' was constructed and framed by an individual within a social world. In this instance the social world was the clinical context as experienced by PRHOs and affected by them being members (albeit new to it) of the medical establishment. Although the narrative could only ever be partly illustrative of the reality, it was viewed as representative of it and in fact capable of capturing aspects of the PRHOs' construction and framing processes that were otherwise unobservable.

Benner (1984) was interested in experience-based skill acquisition and looked at the judgements nurses used in their jobs. Benner acknowledges that her work was not a description of the typical day, but highlighted what she refers to as 'the growing edges of clinical knowledge' (p.xxi) and focused on the knowledge that was embedded in the nurses' practice and that was learnt from experiencing the job. These were evident where practitioners made comparisons between their experiences; within the common meanings held and shared by practitioners who did the same job and saw similar types of patients; in their assumptions, expectations and their predilection to act in a certain way; in their expressions of exemplar cases and situations; when exploring novel or new practice; or in practitioner maxims through truisms and tenets applied to practice situations. Eraut also refers to maxims as representations of tacit knowledge in

professionals, but that:

> 'Most of tacit knowledge lies in recognising the situation as one in which the maxim is appropriate'
>
> (Eraut 2000, p.124)

Dreyfus and Dreyfus suggested that maxims were employed only at the 'proficient' level which made it unlikely that the PRHOs would have developed these but it was felt that they would be able to make comparisons between experiences and stories that would demonstrate shared common meanings, assumptions, expectations and ways of acting. By the very nature of doing comparable jobs, the PRHOs would be developing similar clinical knowledge. So although the term 'risk' had the potential to be multi-factorial and also unstable with multiple uses, the literature indicated that because all PRHOs had similar duties to perform, studying them as a group would expose shared meanings amongst the practitioner grade. How much the PRHOs would be willing and able to express the 'risks', or judgements relating to them, was unknown. It could be a politically sensitive topic but also the PRHOs may be drawing on tacit knowledge or describing skills they learned implicitly.

These ways of viewing narrative challenged the negative undertones within Schon's work of only capturing espoused theory when the practitioner talked about his practice and how anything other than researcher observation would fall short of the ideal. From Lave and Wenger's perspective, professional stories were meaningful because they represented the collegial knowledge that connected the communities and manifest the collective and shared values of the communities. However, any study that focused on practitioner stories would capture what Argyris and Schon would describe as theories-of-action rather than theories-in-use.

The literature illustrated a multiplicity of ways of thinking about, and understanding 'risk' and professional practice. This review therefore uncovered a variety of perspectives that could have a bearing on an individual doctor's decision/judgement relating to risk. The immense complexity of what has been described over these two chapters curbed my goals for the study. It was questionable as to whether any aspect of professional

practice could ever be described definitively. This study needed to be practical and realistic in its pursuit.

The single most important observation taken from these reviews, and which truly acted as means of theoretical sensitisation, was the existence of two diametrically opposing ontological stances (realist / relativist) within the risk literature and in the professional practice literature. Researchers also appeared to take either a psychological or a social perspective. Both appeared relevant to clinical practice. If the study were to set out adopting one or other of these, there was the potential to miss the importance of the excluded perspective or miss uncovering associations between the two. For this reason, it was perceived important that the nature of what was a risk judgement, needed to emerge from the practice context.

What was certainly clear from the literature review was that an enquiry into risk judgements within the clinical context was not going to be straightforward.

Chapter Four – Theoretical perspective, methodology and methods

4.0 Introduction

In this chapter the theoretical position, methodology and methods used in the study are described and the rationale for the research approach taken and the methods used are explained. The decisions explained here were made as a result of my engagement with the literature on risk, professional practice and with research texts. Also explained in this chapter are the means by which rigour was ensured as well as how ethical issues were addressed. Throughout the chapter the perceived compromises and limitations of the study will be discussed. Practical issues and problems that arose in the study will also be described.

The lay-out of the chapter predominantly reflects the chronological order of the decisions made and actions taken but is also set out in a way which will facilitate the reader in understanding the study's development and implementation. The chapter is split into two main sections. The first section (4.1) describes the study development and the theoretical underpinnings of the study. The second section (4.2) describes the study design and gives details as to how the study was conducted.

The research approach adopted for this study was interpretivism, the methodology drawn from grounded theory and the predominant method used was semi-structured interviews.

4.1 Study Development

The study began with an interest in how clinicians recognise some situations as 'risky' and others as unproblematic. The linear and rationale explanations of algorithms and fault-trees were not thought to adequately explain the complexity of making judgements within the practice context. Nor did they help in understanding how subtle changes from one event to another might cause significant differences in the way a clinician would approach a clinical situation.

The study started with the following aim: To generate a conceptual understanding of clinical judgement in a 'risky' situation.

4.1.1 Overview of early decisions

4.1.1.1 Focusing on the pre-registration year

Although my interest was with clinicians generally, the focus for this study was specifically on PRHO practice for the following reasons:

The pre-registration year is an important transitional year for doctors as it is the interface between pre- and post-graduate medicine and characterised by the 'doing' of medicine rather than the 'theory' of medicine. As PRHOs were new to full-time practice it was felt that tacit knowledge, a feature of professional practice, would be less pronounced in this group and they may be better able to describe rationales and behaviours that, for their seniors, would be unconscious actions. However, the data collection needed to occur late enough in the pre-registration year so that established practices had been formed and the PRHOs' clinical knowledge had developed.

Another reason for selecting the PRHO grade was concerned with negotiating access. I had worked with previous cohorts of PRHOs and knew the people who supported and administered the pre-registration year. It was thought that gaining access to the PRHOs might be more readily negotiated by having these contacts.

4.1.1.2 Tentative approach

The literature review demonstrated a number of competing perspectives on 'risk' and on how practitioners were believed to think and work in practice. It could not be assumed that what I would label as a risk would be shared by the PRHOs or that their interpretations would be in line with the medical literature. I did not wish to start the study specifically adopting a cognitive or a socio-cultural perspective on clinical practice. What was wanted, was that the PRHOs' conceptions of 'risk' and how they judged 'risky situations' would emerge from the data and guide the development of the study.

A phased approach was thought necessary. The first phase would develop my understanding of 'risk' and how it was conceptualised by the PRHOs and suggest the focus for the 'risky' situation. Further phases would develop the conceptual understanding of clinical judgement within such an identified 'risky' situation'.

The phenomenon I wished to capture was conceptualised as an internal processing of information. It was not going to be overt and consequently difficult, if not impossible, to observe. Instrumentation was considered problematic mainly because it gave boundaries to data collection which might prevent the richness of the PRHOs' understanding from being captured. Stories, explanations of practice and insight from the PRHOs' experiences were thought useful as these would allow the PRHO to discuss what was relevant and pertinent to him without constraints. It was recognised that this approach had the potential, not only to capture an individual's experiences, but also his values, beliefs as well as the discourses of his profession. This was seen as positive as it would allow me to engage with the 'individual' but also with socio-cultural elements that might impact on practice.

Through the data collection and analysis of Phase One data, came an appreciation of 'risk' as a construct. By the beginning of Phase Two the importance of constructionism was recognised and became a pervasive theme throughout the study and this emerging importance is mirrored in this thesis.

The following research question also arose later in the study after greater insight into 'risk' was gained: 'What influences a PRHO's response to a judgement call within a clinical setting and what, if any, are the relationships between these influences?' The research question therefore was not devised until the beginning of Phase Two once I had appreciated that the labelling of something as a 'risk' was a judgement call.

In this study the term constructionism is used in reference to the way that knowledge was perceived as being generated. Interpretivism refers to the research paradigm in which the study was conducted. These terms are explained in more detail later in this chapter.

4.1.2 Epistemological position of the study

4.1.2.1 Personal positioning

Although the term 'constructionism' only became known to me in the year 2000, the notion of individuals constructing their reality and these constructions guiding their actions had resonance with my own clinical practice.

When trying to give foot-health advice, I found that more often than not, patients would challenge my advice with reasons why it would not work. These 'blocks' were sometimes due to unacceptable life-style changes being asked of them but in other instances the patients expressed doubts about the effectiveness of the advice. Discussions with patients were illuminating. Often the patients did not perceive they had 'problems' and as long as they could come regularly for treatment there was no need to change their life-style - no pain equated to no problem.

More complex were the reasons patients gave for acquiring foot problems and explained why some individuals were unlikely to take advice. People had various ideas about why they had foot complaints and these influenced where the 'blame' for these conditions lay and also how they could be managed. For example, if the patient believed that a corn had roots (like a plant) the chiropodist needed to dig deeply to remove it. If it came back, it was because the chiropodist had failed to remove each piece of it (like a dandelion root). Others believed that they had inherited corns (mother had same problem) and as it was 'genetic', corns were inevitable. Others believed that a particular pair of shoes in their youth had caused corns and thus the damage was done and they now lived with the consequences. The patients' explanations could have been excellent deflecting devices but represented to me constructions of their reality and through which they decided upon (and justified) their actions and inaction.

4.1.2.2 A constructionist epistemology

For constructionists, knowledge is not 'a given' but is constructed, and understanding is a creation of these constructions (Crotty 1998). Constructions are important because they will influence how the 'world' is viewed, what conclusions are drawn and how future meanings are derived.

From this perspective, meaning is constructed in the minds or collective minds of individuals as they engage with the(ir) world. If one supports the notion of knowledge being constructed, one accepts the potential for multiple realities of truth as well as the relativistic nature of knowledge (Nightingale and Cromby 1999). Constructions however can be 'real' in the sense that words such as love, grief and risk have meaning without them existing as tangible objects (Gergen 1999). This positioning has

implications for research terms such as 'objective' and 'subjective' which are used within positivist research to mean 'factual' and 'created' knowledge respectively. From a constructionist position the data gained from people describing their lives is not subjective (created) but are interpretations derived from their 'experienced' world.

As well as being its greatest strength, knowledge-as-construct and the interpretativist nature of a constructionist epistemology could also be viewed as its greatest weakness. How can one conclude that the findings from a study are true or accurate when the findings can only ever be thought of as another construction? And if all the findings from this study are merely constructions, how can this study have any significant meaning to the 'real' world of medicine and medical practice?

Such questions miss the point of this epistemological position. Constructionists are concerned with exploring different views of reality and the influences these have on how people view their world and their potential impact on action. From exploring these perceptions, one can begin to map meanings and how individuals or groups view and interpret their world and from these gain an appreciation and understanding of 'problems', complexities and action in terms of these structures (Mercer 1995). Shared realities are of particular importance because these explain how cultures (or professions) have collective understandings and behaviours.

The construction of knowledge by subjects and 'the researcher' became a pervasive premise through this study. From the intent of the data collection methods in gaining and capturing insights into the PRHO's construction of practice to accepting that 'risk' was a construct which is socially and culturally mediated. The analysis was also thought of as a construction as through the collective views and experiences of the PRHOs, I constructed a recognisable interpretation of their world. I need however to acknowledge that the clarity described here was not evident in my thinking at the beginning of the study and emerged only as the study progressed into Phase Two.

In the next section the theoretical positioning of the study is described in order to explain the approach that was taken to study the phenomenon.

4.1.3 Theoretical position

The theoretical perspective or paradigm adopted for this study was interpretivism.

Interpretivism is described by Cohen and Manion as being concerned with '...understanding the subjective world of human experience' (Cohen and Manion 1998, p36). Within this study it is more fitting to view interpretivism as understanding the constructed world of human experience. The intent of the interpretivist is to capture, as near as possible, the experiences of the people who 'live-the-life'. People make sense of the world which they inhabit and therefore, when a researcher engages with a person, he captures an already interpreted (and constructed) reality (Blaikie 1993). Thus by using people as data sources and adopting an interpretivist stance, the findings of a study become an interpretation and construction of collective constructions.

Within interpretivism the researcher is integral to interpreting the realities of the subjects, putting them together and creating a picture of a social reality, albeit one that is recognisable to all those who live it. Whilst positivist researchers must maintain an objective, distant and non-interfering relationship with their subjects, environment and data, the interpretivist researcher accepts and acknowledges his influence on the study: deciding on the focus of the research and the context, selecting the subjects and the means by which the data is collected, interpreted and reported.

From insights gained in capturing the experiences of the individual, the researcher aims to generate an understanding of standard features so that generalisations can be made. Williams suggests that interpretivists make 'moderatum' generalisations or 'generalisations of everyday life' (Williams 2000, p.215). These are where the researcher draws theoretical inferences from the data. That is to say they make judgements and conclusions about the links between identified features. This differs from empirical generalisations found in positivism where the findings from one study can be demonstrated to exist in a wider population. Although Williams is sceptical about some of the claims made by interpretivists, he suggests that small scale studies which epitomize a 'type' can generate theory.

A criticism of interpretivism is that it superimposes theory onto peoples' personal theories (Thomas 1998). Thomas argues that what interpretivists do is not discover theory, as suggested by Glaser and Strauss's classic text, but invent it. Thomas maintains that, by using the term 'discovery', it suggests that a theory is 'there' and exists whether it is discovered or not and that it is ultimately 'the' theory. This argument has merit and certainly it would be more consistent within a constructionist framework to see a theory as just one possible explanation. It is acknowledged within interpretivist inquiry that a researcher is constructing a model of meaning and action within a particular framework but that is not to suggest that this does not have merit. The outcome of such inquiries can stimulate critical reflection and challenge accepted ways of practice by allowing it to be re-examined and comprehended. By critically examining practice in this way, the findings may even act as an instigator for change. This was in line with what I sought from this approach.

4.1.4 Methodology

The intent of this study was to gain a conceptual understanding of 'risk judgements' in clinical practice and, by doing so, gain deeper insight and understanding of this practitioner activity.

It is acknowledged that the methodological approach taken has drawn on the tradition of symbolic interactionism and could be perceived to include elements of phenomenology and ethnography. However, I started the study wanting the 'judgement of risk' to be generated from, and grounded in, the data. This brought my reading to grounded theory. Although there are issues with labelling the methodology as unequivocally grounded theory, it is acknowledged that this study does draw heavily on this methodology and therefore it is described in more detail.

4.1.4.1 Grounded theory

Grounded theory is said to be useful where there is little knowledge of a phenomenon or when a fresh outlook is needed (Maijala *et al.* 2003). It was for this latter point that it seemed a pertinent methodology for this study. Reviewed studies had predominantly taken a reductionist view to clinical judgement and most often the researcher had decided what constituted 'risk' and/or its conceptual boundaries. What I wanted was an

understanding of PRHOs' judgement of risk that arose from their perspective.

In grounded theory the researcher does not become part of the phenomenon, as might be the case in ethnography, but instead 'moves around it' (Charmaz and Mitchell 2001, p.163). This was also viewed as desirable. There were significant logistical and ethical considerations preventing me from becoming included in the PRHOs' practice. What I needed was insight into practice rather than integration into it.

Grounded theory was developed by Barney Glaser and Anselm Strauss in the late 1960s and its theoretical framework drawn from symbolic interactionism (McCann and Clark 2003) It is characterised by systematic analysis of the data, and theory is built and tested by continual engagement with data collection and analysis. The following are the steps used in developing grounded theory (Wilson and Hutchinson 1991; Wainwright 1994; Glaser and Strauss 1999):

1. Theoretical sensitivity - the researcher becomes orientated with regard to the subject through engagement with selective literature.
2. Open coding - the researcher does a line by line analysis and produces codes to deconstruct the data.
3. Theoretical notes - short notes are made describing ideas or insights
4. Axial or theoretical coding – through the interpretation of the data codes are grouped into categories. As open coding acts to deconstruct the data, this process rebuilds it.
5. Analytical memos – notes are made defining and describing the categories.
6. Theoretical framework – a summary diagram is created from the categories and memos.

7. Core category (unifying concept) – central categories are identified. These categories explain the essential elements gained from all the above processes.
8. Grounded theory – 'theory' is achieved!

Central to this process is constant comparative analysis where data collection and analysis take place at the same time. This allows theory generation and verification to occur concurrently. To assist the development of theory, the researcher moves from

purposive sampling (one that uses predetermined criteria) to theoretical sampling (one that facilitates the development of the emerging theory) as theory emerges from the data (Glaser and Strauss 1999).

In later years Glaser and Strauss appeared not to agree with how the processes described above ought to be conducted, with Glaser accusing Strauss of devising another methodology which he referred to as 'full conceptual description' (Glaser 1992). From my own reading it appears that Glaser and Strauss's book describes a methodology which gives insight into methods, whilst Strauss and Corbin (1998) instruct predominantly on methods. That is to say, Glaser and Strauss focus predominantly on the strategy, plan and intent of ground theory whilst Strauss and Corbin focus predominantly on its techniques and procedures. This understanding is in line with Glaser's criticism that Strauss and Corbin developed their approach in response to teaching undergraduates, which caused them to provide a prescribed pattern of steps on how to do it. Robrecht wrote of the formulaic approach of Strauss and Corbin '... Strict adherence to these procedures implies a linear sequence of events that violates the early assumption of the method' (Robrecht 1995, p.175). Certainly, when attempts were made in this study to follow Strauss and Corbin's approach, the procedures appeared to take precedence over the data.

Although it was not recognised when starting this study, grounded theory has 'objectivist' and positivist leanings and therefore could be viewed as being at odds with the constructionist epistemology and interpretivist stance described previously. However, grounded theory is now being re-considered within current constructionist and interpretivist frameworks (Charmaz 2005). What will be described in this thesis are the challenges I had with what I now recognise as the post-positivist stance of grounded theory, and my change from a post-positivist approach to one of interpretivism.

Throughout the study I questioned the accuracy of labelling the approach I took as grounded theory, even though my intent was in concordance with the original writings of Glaser and Strauss. It is apparent in the accounts on methods adopted, that this study did not follow Strauss and Corbin's prescribed method of analysis and that my

study deviated from the writings of Glaser and Strauss (1999) in some important ways. These issues are summarised below.

4.1.4.1.1 Theoretical sampling

The sampling approach taken in this study deviates from those prescribed by Glaser and Strauss. In each phase the sampling strategy was chosen, implemented and continued until the end of that phase of data collection. Phase One was in line with Glaser and Strauss because it used a purposive sample at the start of the study but in Phase Two, arguably I should have moved onto theoretical sampling. Although the line of questioning developed, the sampling frame did not change.

Phase Two's sampling was different from that of Phase One in that it involved only the PRHOs who were succeeding in their role. This was done to gain insight into what factors *ought* to be considered in that particular 'risk judgement' and what were construed as *appropriate* relationships and responses to it. Despite this difference between Phases One and Two, this study could not be considered to have used theoretical sampling but rather purposive sampling throughout.

4.1.4.1.2 Constant comparative analysis

In each phase of this study the analysis started after all the data from that particular phase was collected. This was done for practical reasons rather than methodological ones: there was limited time available and consequently all of it was used in interviewing or organising interviews. This left little time for other activities. Transcriptions also took time and were only available for systematic analysis after the interview period.

To ensure my engagement with the data throughout the interview period, previous interviews were deliberated upon by listening to the audio-tapes and reflecting upon the direction and function of the interview schedule and whether it was achieving its goal. This process also ensured that questions which arose from one interview were considered for the next. This allowed the interview schedule to be challenged and developed, the interview styles to be questioned, and time given to reflecting upon whether topics had been fruitfully explored or whether others had been missed. These

deliberations influenced subsequent interviews. This resulted in a more fluid and developmental approach to the interviews.

As well as the above, each subject's account was considered against others, categories were viewed against other categories and themes were challenged against contrary themes. These processes, however, cannot be construed as systematic analysis occurring throughout the interview period. Systematic analysis of the transcripts happened at the end of each phase, rather than in parallel with it.

As a consequence of the above, when it came to developing the axial coding, the analysis did not follow what Norton refers to as 'abduction' (Norton 1999): a process of cyclic data collection, hypothesis formulation, testing and theorising where theory generation occurs within the research process rather than being before or after it. Neither does inductive reasoning (a linear process where theory is generated after the research) adequately describe the processes employed in this study. There was engagement with the data throughout the interview period, and this was a creative period of exploration. Even so, the systematic analysis, starting with open coding, began at the end of the data collection period rather than running concurrently with it, as it ought to do with constant comparative analysis.

4.1.4.1.3 The use of one method

The PRHO study used predominantly interviews and in Phase Three a limited number of observations were used to inform the analysis. This meant that the data was generated from a single method. This could also be considered inconsistent with the methodology (Wilson and Hutchinson 1991).

4.1.4.1.4 Generating theory?

A more complex issue within this study was the appropriateness of labelling the findings of this study as 'theory'.

Glazer and Strauss describe theory (sociological theory specifically) as '... a strategy for handling data in research, providing modes of conceptualization for describing and explaining' (1999, p.3). Strauss and Corbin define theory as, 'A set of well-developed

concepts related through statements of relationships, which together constitute an integrated framework that can be used to explain or predict phenomena' (1998, p.15). What has been generated in this study falls short of Strauss and Corbin's definition of theory but, more importantly, was not what was intended. I viewed my study as a way of conceptualising a particular 'risk judgement' for the purpose of describing and explaining it. But was my pursuit one of developing a conceptual model?

McCann and Clark (2003) describe different levels of 'theory' and differentiate these from conceptual models. For these authors, a conceptual model is less concrete than a theory and less specific and gives a wider view of the phenomenon under study. Relating this to my study would mean that my intent was to present a model of clinical judgement. Theories, in contrast, are more specific and focused.

McCann and Clark state that grounded theory can generate formal or, more commonly, substantive theory: formal theories cover broad subject areas and are academic in their focus. The examples McCann and Clark give are illness experience, professionalism, power relations and, for this study, an equivalent area may be about risk culture within healthcare. Substantive theories are more specific and have a narrower focus. This was perceived to be more in line with this study intent.

The deviations from Glaser and Strauss' writings are acknowledged and the above section explains my reluctance to label the methodology as unequivocally grounded theory. There are some who would argue that all the prescriptive steps given by Glaser and Strauss are not needed and that actually it ought to be an adjunct of an individual's critical analysis (Schatzman 1991 cited in Robrecht 1995). It is clear from the following sections that this is the approach I have adopted.

4.1.5 Methods

The conclusion drawn from the literature reviewed was that in order to understand how PRHOs read and respond to judgement calls in the clinical situation, the study needed to focus on situations that were deemed 'risky' by the PRHOs. This conclusion suggested that the study should start from an understanding of what PRHOs perceived as the 'risks' of clinical practice. These captured insights would then allow a more

focused investigation into what influences a junior clinician's response to this judgement within a clinical setting.

A significant problem anticipated in this study was how to capture an authentic representation of the PRHOs' 'risk judgement' in a practical and ethical manner. What was wanted was an approach that would allow the PRHOs' conceptualisation of the phenomenon to be captured. The 'risk judgement' was viewed as a hidden process with very little to observe. From the beginning of the study it was felt that observing the PRHOs waiting for a 'risk judgement' to manifest itself was not practical within the time constraints of the study and was ethically dubious. The PRHOs would need to be followed night and day in the hope that some 'risk judgement' was going to be made. I would only know 'it' was considered a risk judgement by asking the PRHO repeatedly if this was an appropriate label for that situation. More troublingly was that this questioning would occur at a time when the PRHO might be facing a challenging clinical situation that might impact on patient care and, it was felt, would be an inappropriate time to ask the PRHO to deconstruct the situation whilst also trying to manage it. Questions could have been asked after the event but it would still have meant following the PRHO around until something occurred that the PRHO felt warranted the 'risk judgement' label. Observations were felt to be impractical and unethical.

4.1.5.1 The use of interviews, stories and narratives

Benner (1984) views clinician's interpretative descriptions of their practice as the means by which clinical knowledge can be captured. Clinical knowledge, she states, is exposed when clinicians make qualitative distinctions between cases and from the common meanings they share and describe in their stories of similar situations and patients. It is also illustrated by the assumptions and expectations clinicians have about practice. Benner suggests that clinicians will describe set ways of working and acting and will include paradigm cases and personal knowledge in their accounts. Paradigm cases are similar to the episodic and semantic memory described by Eraut (2000a) where a special case or collection of cases act as exemplars of situations and have influenced further behaviours and actions. When maxims, rules or truths are espoused by practitioners they are recognisable to other practitioners and these, says

Benner '... can be a beginning point for identifying an area of clinical judgement' (p.10). Eraut also refers to maxims as representations of tacit knowledge in professionals (Eraut 2000, p.124).

At the beginning of this study it was difficult to assess how well these relatively junior clinicians would have developed sets, maxims and case exemplars. Dreyfus and Dreyfus (1986) suggest that maxims are employed at the 'proficient' level and Brenner records that it is proficient and expert nurses that have many paradigm cases. The PRHO, with considerably less experience, was thought unlikely to have reached a proficient level of clinical practice. Despite these concerns, the use of descriptive cases was viewed as useful in capturing PRHOs' clinical knowledge. By discussing with the PRHOs their risk judgements in the workplace, it was felt that the defining features, rules of practice and even, potentially, maxims could be exposed.

Although differences were known to exist in how PRHO posts were organised, as they had the same duties to perform, discussions about their practices were expected to expose shared meanings within the cohort.

The use of narratives has been described by several authors. Greenhalgh and Hurwitz (1999) suggest that narrations ensure that descriptions are grounded in experience and put the story-teller at the centre of the research. Clark describes the use of phenomenology and clinical stories as 'uncovering the definitions and meanings of patient-care dilemmas' (Clark 1997, p.443). For Lave and Wenger the roles of stories are of major importance, not because learners can necessarily learn from these stories but because through the stories they take a part within their community of practice (Lave and Wenger 1991).

But the theories we hold about our practice are not always the same as our 'theories-in-use' (Argyris and Schon 1974). This was not considered problematic. It was recognised that stories and narrative can only ever be partly illustrative of the reality, but they can represent many of the hidden aspects of practice that are voiced and made more explicit within clinicians' collective stories. The stories are constructions, but constructions that tell of the values that underpin clinical work and the judgements

made. The stories are important because they hold within them what it is important to demonstrate in practice, what one must be mindful of and the factors that the clinician must differentiate between. Within their narratives the PRHO may want to reflect his behaviour in a good light and his dialogue might illustrate his attempts to do so, but in doing this the stories capture what is desirable and valued as well as problematic, in practice.

So, despite the limitations, interviewing using clinical accounts and stories was chosen as the method of choice for this study.

Becker *et al.* (1961) proposed that interviewing groups makes individuals talk about the things that are acceptable within the group and therefore encapsulates the norms of the group. This suggested that individuals would potentially give different perspectives if discussing their views individually or within their cultural group. It was felt that group interviews could be useful. At the beginning of the study the decision was made to interview PRHOs both individually and within groups to ensure that both individual and group 'perspectives' were captured.

4.2 The Study

The next section of this chapter describes the steps in generating and analysing the data.

4.2.1 The Phases of data collection

The aim of the study was to generate a conceptual understanding of clinical judgement in a 'risky' situation. It was decided not to devise a research question until 'risk' was better understood and there was a clearer focus for the study; a focus that was generated from the data. A phased approach to data collection was adopted (Figure 3).

The overall aim of the first phase was to gain insight into the usage of the term 'risk' by PRHOs to describe their practice. The data from this phase would then set out the parameters for usage of 'risk' for the study, inform subsequent phases as well as identify potential methodological problems.

Phase One indicated that when faced with anything that they would consider 'risky', PRHOs knew they were expected to ask for help or advice. That is to say, by recognising the need to contact a senior, the PRHO recognised that situation as problematic, uncertain and dangerous. It was also realised that this was a crucial judgement for PRHOs. Consequently the process of 'calling for help' was explored in the second phase of the study as were the factors mediating this activity.

Figure 3. Phases of the study

	Aim(s)	**Data collection period**
Phase One	• To explore the use of the term 'risk' in PRHO practice • To detect potential methodological problems for the study • To identify particular situations that future phases could use as a focus	Individual and group interviews – between April and July 2001
Phase Two	• To explore the factors that influence PRHO action in asking for help or advice • To explore the effect different contexts have on the decision to ask for help.	Individual interviews – between April and July 2002
Phase Three	• To support or challenge the developing interpretations from the Phase Two data	Observations – over four days in May 2003 Presentations - between June and July 2003

Phase Three represented a further exploration of 'calling for help and advice' and involved two processes; observations of PRHOs at work and presentations to groups of PRHOs to discuss emerging interpretations. Although this phase was initially planned as the means by which the findings would be verified, the activities were viewed differently by the time this stage of data collection was reached. The activities remained the same but moved from a verification process towards the means by which I facilitated my emerging interpretation of PRHO experiences and challenged my assumptions. This shift in purpose demonstrates a conceptual change in my relationship with the data. When starting this inquiry I viewed my role as a passive analyser of the PRHOs' constructions. By Phase Two, the interpretative nature of the study was better understood.

Each phase informed and influenced subsequent phases. The research question emerged after Phase One: what influences a PRHO's response to a judgement call within a clinical setting and what, if any, are the relationships between these influences? The judgement call referred to was whether or not to contact a senior.

The following sections describe the processes and procedures adopted for the study, and on what these decision were based.

4.2.2 Population and sampling

The population under study were PRHOs employed within the Northern Deanery. In 2000 there were 248 PRHO posts within this Deanery, in 2001, 253 posts and in 2002, 263. The sampling approach was purposive in that the sample selected was representative of the characteristics sought (DePloy and Gitlin 1993).

To gain a sample of PRHOs, hospitals were stratified by their size and type. The number of patient beds was used to judge hospital size. The decision to stratify this way was based on the literature, where differences in experience, support and activities were reported between teaching and non-teaching hospitals, and between large and small hospitals (Allen 1994). After discussion with a health service manager, hospitals with over 900 beds were considered 'large' hospitals, 'medium sized' hospitals had between 300 and 600 beds and those of less than 300 beds were judged as 'small'. Using these criteria the Northern Deanery had two teaching hospitals, two large hospitals, eleven medium sized hospitals and one small hospital (Appendix A).

In Phase One the decision on where to conduct individual or group interviews was arbitrary. One teaching hospital, one large and one small hospital were allotted to either individual or group interviews. From the eleven medium sized hospitals, one with the largest amount of PRHOs, one with the least and one somewhere in the middle were selected for use in both group and individual interviews. This meant that there were six sites involved in the group interviews and five sites in the individual interviews. For the individual interviews the Clinical Tutors from the selected hospitals were asked to identify PRHOs who represented a mix of genders, medicine and surgery jobs and a mix of abilities.

The plan was to continue the individual interviews until no new insights were gained. It became apparent early on in the interviews that fewer interviews would be required than had been anticipated. However, to ensure that any differences between sites would be captured, interviews were continued until all selected hospitals had been visited, although the number of planned interviews was reduced at each site from eight PRHOs in the first site down to four in the last. For the group interviews, all PRHOs employed at the selected hospitals were invited to attend.

In Phase Two, hospitals were again selected from the stratified groupings. Those hospitals involved in the individual interviews of Phase One were removed from the selection unless they were the only one within that group. This strategy was adopted so that the study did not rely too heavily on a few hospitals.

For Phase Two the Clinical Tutors were asked to submit names of PRHOs for interview that once again represented males and females from surgery / medicine but this time they were asked to select those PRHOs that were considered to be 'safe' workers i.e. ones for whom no serious issues had been passed on to the Clinical Tutor by their educational supervisor or other members of staff. The reason behind this decision was to capture appropriate actions: the 'safe' PRHOs were thought most likely to action aptly 'asking for advice and help'. Experiences from the Phase One data collection round suggested that there were no apparent differences with regard to the experiences of the PRHOs in the medium-sized hospitals and that fewer PRHOs could be interviewed. Therefore a large teaching hospital would be asked to submit eight names, two medium-sized hospital six names each, and the small district hospital, two names.

The decision in Phase Three to use a medium sized hospital for the observations was based on hospitals of this size being the most common type within the Deanery. The reason for selecting a particular hospital was that my links with a senior manager within the hospital facilitated access.

In Phase Three the presentations were done in the hospital where the individual 'risk'

interviews were conducted in Phase One. This decision was made to ensure that the inferences drawn from the 'calling for help' data was also applicable to those sites where the 'risk' data was collected.

The techniques used to gain a sample of PRHOs generated a number of problems. These are described at this point in the thesis as the issues from Phase One influenced the processes employed in subsequent phases.

4.2.2.1 Sampling problems

There were differences between the numbers supplied by the Postgraduate Institute for Medicine and Dentistry (PGIMD) and the number of PRHOs actually employed within the Deanery. This was only an issue for the first group interviews in Phase One. Once this discrepancy had been noticed, the list of PRHO names supplied by the PGIMD was checked against the Trust lists.

At each phase, postgraduate centres at participating hospitals were given a list of instructions on how to select a sample (Appendix B). There were a number of problems experienced in gaining a purposive sample which caused variability in the way in which the sample was selected between sites. Although the Clinical Tutors were asked to supply the names of suitable PRHOs, in reality much of this work appeared to be done by the Postgraduate Centre Manager. The majority followed the instructions although it is questionable as to how knowledgeable they or the Clinical Tutor were at selecting the PRHOs in terms of their ability. In Phase One a Centre Manager only returned a list of names indicating the gender of the PRHOs. In this instance the PRHOs were randomly selected from the stratification. In Phase Two a Postgraduate Centre Manager at one site asked for volunteers rather than actively selecting individuals. At another site the Centre Manger announced once the interviews had been organised that she had selected the 'nice PRHOs' for the study.

When variability was suspected, the Clinical Tutors and Centre Mangers adherence to instruction was not challenged as it was felt that the gains from challenging would be less significant than the damage it would cause to subsequent phases.

Despite these problems the PRHOs interviewed presented with similar issues and concerns in Phases One, Two and Three. However, the weaknesses in the sampling selection method are acknowledged.

4.2.3 Data Collection Procedures

4.2.3.1 Phases One and Two

All Clinical Tutors whose hospitals had been selected were written to, explaining the study and what was needed. Follow-up telephone calls were used to answer any questions the clinical tutors had about the study.

The PRHOs who were involved in the group interviews for Phase One were contacted by letter to explain the study aims and what would be expected of them (Appendix C). For the individual interviews, the PRHOs were contacted by letter and told about the study (Appendix D). They were then contacted the following week so that any questions they had could be answered and, if in agreement, an appointment arranged. The day before each individual interview, the PRHO was contacted by phone to remind them of the appointment because previous studies with PRHOs showed that some were forgetful of such meetings.

In Phases One and Two the following procedure was adhered to:

- Introduce self and study. Explain the function of this phase to the PRHO
- Answer any questions
- PRHO asked to complete the data-sheet
- Interview schedule followed

Interview schedules and data collection sheets have been submitted as Appendices 5 and 6 respectively. All interviews were tape-recorded and transcribed.

4.2.3.1.1 Data collection sheets (Appendix E)

A data-sheet was used to collect the demographics of the PRHOs so that the sample could be described. It was not possible to compare the sample against the actual population because no accurate data was available at that time on PRHO gender or

jobs across the Deanery. In Phase One the PRHOs were asked to 'list the risks' at the bottom of the data sheet. These were the risks that came into their minds without prompting and were used in the interviews to facilitate discussion.

4.2.3.1.2 Development of Interview schedules (Appendix F)
Although some pre-testing of the initial interview schedule was conducted with colleagues at the Postgraduate Institute, a definitive interview schedule was not sought. In accordance with a grounded approach, the interviews needed to change, develop and be responsive to the PRHOs' agendas. The schedule was therefore adaptive and evolutionary. However, it did contain specific questions as well as prompts. This allowed me to focus the enquiry whilst also allowing the PRHOs freedom to describe issues they perceived to be relevant. The interviews were designed knowing the PRHOs would be restricted as to how much time they would, or could, give to the process.

Over the data collection period in Phase One, the style of interviewing changed. In the initial interviews I assumed the role of neutral observer, taking care not to lead the interviewee or influence the direction of the interview. This style was adopted primarily because there was no indication as to what direction the interview should take as well as being the way I thought it ought to be done. This form of interview style quickly resulted in no new information or insights being offered by the PRHOs.

Over Phase One, as I became more informed, I began to clarify and later challenge my assumptions and constructions. This change in approach also changed the quality of the interviews which became more open and less formal, and the PRHOs appeared more willing to describe the 'messy' reality of clinical practice. For example:

First interview from Phase One where the letter J represents me speaking:

> J Now, you said something before I had switched on the tape,... about what does this mean to myself or to the actions I take. Could you expand on that? And explain to me about what you were thinking at that time? (A1 As regards to the risks?) J Yes. (A1:18-25)

Penultimate interview from Phase One

> J And what was the bracket you put that under? (I31Non-physical, I couldn't think of anything [laughter]. Typical cop-out.) J I was wondering – 'cos people use the term medical risk and I've no idea – you know, after having done thirty-odd interviews, I'm still not clear about what a medical risk is. (I31 A medical risk to me, if you said that to me, would be something like an infection, you know ...(I31:152-162).

The final interviews became a discussion and a means by which I challenged my thoughts. The interviews represented a move from semi-structured to a more in-depth approach (Britten 1995). Such a change in approach over a study period and its subsequent benefits has been recognised by other researchers (Melia 2000).

The development of this style allowed initial interviews to gather predominantly 'system' information (how things were done) and to a lesser extent uninitiated responses to the phenomenon under study. In later interviews, when the system structures became clear, this emphasis was reversed. This change of style and emphasis evolved in Phase One but was actively sought for in Phase Two. I also became more skilled at interviewing. Listening to the tapes in Phase One showed that I often asked a question and then immediately rephrased it giving the PRHOs a different version of the same question. Having identified this as a problem, a conscious attempt was made to stop and subsequent tapes suggest this problem was significantly reduced.

4.2.3.1.3 Group interviews

The problems with the group interviews in Phase One were significant and again influenced further phases. The problems are therefore discussed at this point in the thesis.

Whilst the individual interviews were predominantly friendly and open, the group interviews in Phase One were superficial, light and poorly attended: three attended the

first interview (21.4% of the PRHO employed at that site), three the second (75%), three the third (27.3%), ten at the fourth (47.6%), seven at the fifth (36.8%) and nine at the sixth (39.1%). The group interviews were difficult to manage and readily descended into a discussion on how difficult it was to be a PRHO. They were monopolised by a few and by the more vocal. Added to this, the tapes were difficult to transcribe when the group involved more than three voices. More importantly, rarely did PRHOs offered stories or insights from their own practice.

Along with my inexperience as a group interviewer, the group interviews captured too well group behaviour and there was little personal disclosure. It was considered that this type of interview was unlikely to answer the research question. The group data from Phase One are not presented in this thesis for those reasons.

4.2.3.2 Phase Three

The approach taken in Phase Three was devised from the observations made over Phases One and Two and the analysis of these data.

4.2.3.2.1 Observations of PRHO at work

Access to the chosen site was negotiated via the Clinical Tutor and the lead on research within the Health Trust. All the PRHOs at the site were written to and the study explained. Two volunteers were sought for observed practice over a 2-3 day period (Appendix G).

The decision was made to observe one PRHO in medicine and one in surgery as the data from Phase One highlighted significant differences in the ways these specialties worked. It was perceived useful to observe medicine during normal service hours and on-call as this was the time when the PRHOs found calling for help and advice most challenging. In surgery, 'calling for help and advice' issues were not related predominantly to out-of-hours working but whilst seniors were in theatre and the PRHOs were on the ward. Observations of surgery were therefore conducted during normal service hours.

Field-notes were taken over the observation periods where the activities of the PRHOs

were recorded along with descriptions of their interactions but excluding their patient interactions. The notes were written in a notebook and acted as an aide memoir in writing reflective accounts of these days. The observations helped in the developing conceptualisation of the Phase Two data and allowed me to gain a deeper understanding of comments made by the PRHOs in the interviews.

4.2.3.2.2 Presentations of analysis to PRHOs

In Phase One, the Clinical Tutors were contacted in March for the group interviews. This proved too late to access a slot in the PRHOs weekly teaching session and therefore extra sessions were organised specifically for data collection. As a result these extra data collection sessions were very badly attended.

For the presentations in Phase Three, the clinical tutors and centre mangers were contacted at the beginning of the pre-registration year (August) to obtain a slot in the following June/July. Before the presentations, all PRHOs were written to and asked if they would attend the lunchtime session (Appendix H). These sessions were part of the PRHOs formal teaching commitment and came with lunch: the expectation was that these sessions would be better attended than presentations organised purely for data collection.

The presentations for Phase Three were audio-taped and notes taken from these recordings. These notes were again used to challenge the analysis.

4.2.4 Analysis

4.2.4.1 Phase One

Two types of data sorting were conducted: first the identification of 'risks' and second, open coding of the transcripts. The computer package NuDist was used to store the categories generated by these sortings.

4.2.4.1.1 Identification of risks

The aim of this analysis was to categorise risks identified by the PRHOs. The initial sorting identified sentences and paragraphs where the PRHOs described 'the risks'. The data sheet, given out at the beginning of the interviews, facilitated this process by

indicating a schema under which the risks could be placed i.e. differentiating between the risks to self and the risks to patients.

It became quickly apparent that this form of content analysis imposed a structure onto the data and missed important issues: by simply 'identifying the risks' the analysis ignored the complexity of the responses, such as how the 'risks' interacted with one another and how a 'risk' related to a cause and at other times an effect. Within each reported risk node or grouping, there was at least one quote saying unequivocally that a PRHO labelled this as a risk. The node also contained other quotes where the PRHO did not actually say 'this is a risk' but had responded to a question asking about risks or it was clear from earlier comments that they were discussing a 'risk'.

For all of the above reasons, it became apparent that it would be inappropriate to state the strength of the category by the number of quotes within it as this would disregard the complexity of the data. For example C9 wrote on the form, "Frustration at equipment and under manning", and when asked to explain this, the following expansion was given:

> Okay, "Frustration at equipment and under manning". Er, again I think this is one just about cost really. Erm, particularly when you go on the wards – again going back to the beginning – little things increase the amount of time it takes to do a single job thereby putting other patients at risk because you're spending more time doing perhaps mundane tasks than you should do and the time it takes to do a single patient you could be seeing two or three patients in that time. But backlogs when you're waiting for patient – now that's because of things like wards store their drugs and syringes and everything else in different places in the ward so you're fannying about looking for where this is, where that is and you can't find and there's not enough nurses around so you can't ask a nurse because there's none on when you want to find them. (J So you're not just on one ward then?) We're based on one ward but we do cover with other wards. Even on the one ward you know it takes a little while to know where everything is. Er, and so you – that's a source of frustration and of time wasting really, and equipment as well, when you've got, when you're busy you don't

want a computer system, which we have got at the moment, which takes forever to get into. When you're used to now – you're used to computers at home which just whizzes through stuff that you want but these bleeding things you know you just want to put your boot through them. That – things like the chute system where – fine in principle – you know where you put bloods in the canister and you put it in the chute and fire it off – great. But there's been times where I've been in a situation where a person's having an acute bleed, they're vomiting blood, their haemoglobin's fallen massively, I'm trying to get blood off to the labs to get an urgent cross match on it, and there hasn't been a container in the chute. So I've had to ring around trying to find someone to send me a container so I can get it in the chute and then I get the container. I put it in the chute and I wait five minutes before the chute will send it off. These are – ah – irritating frustrations which not only add time to solving a problem with a patient but they also increase levels of frustration in myself, so perhaps you're not as focused as you should be actually on the problem. (C9;215-253)

The above section of transcript was eventually coded as 2.3.1 and 2.3.1.1 (2. - risk to patient, .3-from system, .1-resources, .1-not enough staff. This example demonstrates how difficult it could be to understand what 'risk' they were alluding to on the data-sheet until one listened to the PRHOs' explanations. Both the comments from the data sheet and interviews informed the development of the schema.

4.2.4.1.2 Open coding stored as free nodes

The function of the open coding was to help achieve greater understanding of 'risk' within the pre-registration year. Each transcript was analysed by sentence and/or by paragraph and the perceived essence of what the PRHO was talking about, labelled. This resulted in the adoption of nodes such as 'Relationships between risk to self and patients', 'Examples of risk in practice', 'Inevitability', 'Situational understanding' but also nodes that were less clearly related to risk but appeared important in understanding the world in which risk was being defined: For example, 'Mechanisms for helping', 'Not using help', 'Asking for help', 'Lack of support'. There were also nodes capturing the PRHOs' responses to particular questions.

Data under each node were read and brief descriptions made of what every quote said and then summaries drawn.

Phase One had a significant effect on subsequent analysis and on the nature of the inquiry. From the problems experienced attempting to identify the 'risks' , the epistemological nature of the study and what it was attempting to achieve was reviewed. Re-thinking the analysis, this time in terms of a construction of the PRHOs' reality, more accurately reflected what was actually being done to the data. The analysis came to be viewed as a construction of the PRHOs' constructions and an interpretation of what the PRHOs described. These constructions captured more than what any one PRHO had experienced, whilst remaining a recognisable representation of the pre-registration year.

I also experienced difficulties with the NuDist computer package and although it was enormously helpful in cataloguing and ordering the 'real risks', I found it restrictive and that it imposed a limited structure onto the data. More importantly, it was difficult to conceptualise the data when remaining 'too close' to the transcripts.

The analysis for Phase Two was developed in light of the problems experienced in Phase One.

4.2.4.2 Phase Two

The first stage of analysis was open coding of the transcripts. This generated twenty-three headings or free nodes. Data under these headings / nodes were then gone through and a brief summary written in the margin describing the essence of what was being said. These summaries were then put into a Word document and grouped together into comments about the same issue. This generated further subheadings of these initial groupings. These summaries were then written up using the quotes to describe the data and conceptualised diagrammatically. When a diagram was produced, the free node was then revisited to ensure that the diagrams correlated with the transcripts and all aspects were included. This allowed patterns to emerge from the collective data whilst ensuring an accurate representation of the transcripts. Once the diagrams were felt to accurately depict the node, the next node was summarised and

represented diagrammatically. A worked example of these stages is given in Appendix I. Examples of the diagrams generated from the free nodes are presented in Appendix J.

Once each free node had been analysed, the generated diagrams were then considered relative to one another. This created further modifications of the categories and diagrams. In each instance the free nodes were returned to, ensuring that the diagrams still represented the transcribed data. This method of analysis and the diagrammatical representation allowed interconnections to be captured. It also allowed established systems and processes to emerge and be mapped, and the reasons why these were not followed or adhered to by the PRHOs.

Notes and summaries were kept so that development in conceptualisations could be mapped. The process was also captured in a reflective diary.

The development of coding to categories is presented in Chapter Six (Figure 5, p.125) to aid the understanding of the analysis presented in that chapter.

4.2.4.3 Phase Three

The observations in Phase Three were used as stimuli to challenge the emerging conceptualisations from the data and brought the descriptions of the pre-registration year to life: something akin to hearing about a film and then going to see it for oneself.

Phase Three presentations consisted of presenting to groups of PRHOs my analysis of the data. These were organised originally as a means of participant 'member checking' of the analysis. Although the initial presentations were very productive, as the analysis became more conceptual and abstracted from the PRHO job, the PRHOs appeared to find it less easy to comment upon, or challenge, my interpretations. As the presentations were helpful to the analysis process, because they facilitated clarification and conceptualisation of the categories, these were continued with more senior doctors and were used throughout the analysis and writing up period. These included presentations at international conferences, local research meetings, Deanery hospital groups and senior management meetings. The perceived suitability of this action

further confirmed the contructionist and interpretivist nature of this analysis with me, as researcher, at the centre of the analysis and interpretation.

4.2.5 Ensuring rigour

Methodological rigour was informed by the writings of Lincoln and Guba (1985). These authors suggested that the four tenets of methodological rigour in positivist research had their equivalents in naturalistic inquiry: the equivalent to internal validity was *credibility*, external validity has as its equivalent *transferability*, for reliability *consistency* and objectivity was replaced with *confirmability*. Although Lincoln and Guba's writings at this time relate to ethnographic inquiry or inquiry within the natural context, the tenets appeared useful when applied to this research. This was because some of the techniques described by them allowed the 'quality' and trustworthiness of the research to be assessed by how meaningful and how accurate the findings were in their representation of the lived-world of the participants.

Credibility was said by these theorists to be gained from conducting a study in such a way that it would generate believable findings and also by demonstrating that the findings were meaningful to those under study. In their 1985 paper, Lincoln and Guba suggested several ways in which this could be done - prolonged engagement, persistent observation, triangulation, peer debriefing, negative case analysis, the research being open to critical review and member checking. Some of these have been subsequently questioned by these theorists in a later text as remaining too close their positivist alternatives (Guba and Lincoln 1994). The difficulty of applying these to all interpretivist studies is readily apparent. For example, triangulation implies that no matter which view the researcher takes to capture the phenomenon, all views will result in the same findings. This cannot be applicable to those interpretivist studies where the researcher acknowledges that the findings are researcher bound or context dependent or where the researcher rejects the notion of a single objective reality.

For this study credibility was pursued by the following mechanisms. The data collection period was conducted over three years although limited to a three month period in each year. This allowed for a developmental understanding of the pre-registration year and of medical culture through prolonged engagement with the context. Multiple

interviews were undertaken in Phases One and Two to ensure that multiple perspectives were obtained and that the data included a wide range of experiences. Lincoln and Guba suggested that prolonged exposure helps to build trust. This was not feasible within this study because of the nature of the pre-registration year (PRHOs having this status for only one year and with limited time to spare) and because of the decision to use one-off interviews. Attempts were made to encourage trust by demonstrating to the interviewees a non-judgemental approach and an understanding of the pre-registration year. This was done through questioning and in my responses to their replies.

Phase Three allowed the developing conceptual models to be described to PRHO groups and their opinions to be sought on the trustworthiness of the models. When the analysis became conceptually abstracted these presentations were continued at local, national and international meetings of medical educators and clinicians. Such presentations allowed the analysis and findings to be challenged. This was done through reflecting on comments made by the audience and whether or not these disputed or gave an alternative explanation to my conceptualisation of the data. More informal discussions were organised with other researchers and supervisors and acted as debriefing sessions and also to stimulate challenge to the emerging interpretation. This allowed the work to be subject to ongoing critical review.

In the analysis, abstract conceptualisation of the data, made via the diagrams, were checked by returning to the original transcripts. This ensured that the diagrams encapsulated all the items raised by the PRHOs in the interviews and remained true to the PRHO accounts. The presentations in Phase Three were also used to check the continued credibility of these conceptions.

Transferability is demonstrated by providing descriptions of the sampling used and the context in which the study was set. These are supplied so that the reader may judge the transferability of the findings to different contexts and settings.

Consistency has been addressed through the approach to data analysis and captured in this thesis through the descriptions of what was done and via the presentation of the

nodes to categories and the development of the diagrammatic representations of the data. These are presented to demonstrate the transparency of the analysis method.

Confirmability is sought by describing the ideas and decisions made in the study. This has been done mainly through describing the progression of my ideas and through a critical and reflexive account of the decisions made. A reflective research diary was kept throughout the study which has facilitated this process.

Direct quotations are used in this thesis to substantiate conclusions drawn. Also presented in the thesis are accounts of 'problems' as well as 'what worked'. This has been done to illustrate transparency in the research process and to demonstrate intellectual honesty (Borkan 1999).

Although this study started upholding Guba and Lincoln pillars for ensuring rigour within 'qualitative' research, the reflexive approach adopted meant that these too came under scrutiny. Throughout the thesis some of the steps that this study started out upholding are later challenged. For example, the limits to the pursuit of 'triangulation' and 'member-checking' in an interpretivist study.

4.2.6 Ethical considerations

There were a number of ethical considerations to be taken into account in planning and conducting this study.

4.2.6.1 Cost-benefit ratio (Cohen and Manion 1998)

As alluded to previously, this was the most important ethical issue for this study and shaped its design and ultimately the phenomenon captured. When starting the study, the conflict was how to gain insight into clinical judgement with limited disruption to the work of the PRHO and consequently to patient care. I recognised that it would not be feasible, practicable or in the patients' interests to observe and shadow the PRHOs on the off-chance that something would happen which the PRHOs would describe as 'risky' and then to pursue their rationale for the judgement and actions taken. Although observations would have gained insight into events as they unfolded, the potential disruption to patient care could not be justified.

Collecting the data via interview and conducting limited observations only when the study was more focused, allowed minimum disruption of the PRHOs at work. Working through this problem was also influential in coming to understand the nature of the data collected and the type of knowledge generated by this study. These deliberations further encouraged the adoption of a constructionist / interpretivist framework for the research.

4.2.6.2 Informed consent

For the first two phases of the study, permission to contact a PRHO was gained from the Clinical Tutor, the person responsible for PRHOs whilst working within the Trust. Each PRHO was written to and was asked to participate in the study. The PRHOs were then contacted by phone, and any questions they had about the study answered, and the PRHOs were then invited to take part in the interviews. At the interviews verbal permission was sought to audio-tape the session and explanations given as to how the tapes would be used and how they would be destroyed. In each interaction, the aims of the study phase were reiterated.

For the group interviews the PRHOs were sent a covering letter explaining the study. The PRHOs decided whether they came to the session or not. At the beginning of each session the purpose of the session was again explained, and any questions they had, answered. Permission was sought from the group to audio-tape the session.

There were problems throughout trying to ensure that the PRHOs received the letter of introduction which also explained the study. From experiences in Phase One, sending the letters to the Centre Manger to distribute at the weekly teaching session appeared to help, but this did not guarantee that the letters were read. No solution was found for this problem. The PRHOs seemed relatively unfazed by being telephoned and asked to take part in the study and very rarely asked for identification. Identification was shown before the interviews began.

4.2.6.3 Confidentiality and anonymity

Whilst explaining the study to the PRHOs they were assured that no individual or hospital would be identifiable from the study results. No written consent form was used as it seemed more appropriate that the PRHOs remained anonymous after the interview had taken place. The PRHOs were asked to complete a data sheet that allowed the sample to be described in terms of their gender, place of graduation, number of house jobs, current house job and type of post. This information was used only to map the sample and was not linked with the interview transcripts.

As a further precaution, the quotes used in this thesis were reviewed to ensure that phrases which characterise individuals, making a PRHO potentially recognisable, were removed from the quotes and replaced by a sequence of dots.

4.2.6.4 Discussing sensitive topics

PRHOs did respond differently to being asked about risk in clinical practice and about obtaining senior intervention. In all instances the motives for studying this subject area were explained. Some readily described a negative picture of the pre-registration year, a small minority were suspicious of my motives and the majority gave circumspect but apparently balanced accounts of their and others' experiences. In each instance the individual or group was encouraged to describe and explain their stance. I tried to remain sensitive to cues from the PRHOs that suggested they did not wish to discuss subjects further.

Ethical approval was sought in 2002-3 for the third phase of the study as the new guideline on research governance stipulated that any study which involved National Health Service staff should be reviewed by an ethics committees (DoH 2001). When applying for ethical approval at this time, retrospective approval was also sought for Phases One and Two.

The local ethics committee expressed a number of concerns regarding the study. These appeared to stem from a misunderstanding of the nature of the inquiry and its intent. A letter was sent to the committee addressing these concerns (Appendix K).

After explanation, the Ethics Committee granted approval on the 25th March 2003. Trust approval was also gained during this time.

4.2.7 Study limitations

The study aim was to generate a conceptual understanding of clinical judgement in a 'risky' situation. A phased approach was undertaken, firstly to identify the 'risky' situation that would act as the focus for the inquiry, then in subsequent phases, to identify the influential mediators of these judgements and to interpret relationships between them.

Phase One was crucial in shaping the rest of the study as it indicated the 'situation' to be explored. It also shaped the data collection techniques as it gave greater insight into what would help and what would hinder data gathering and what could and could not be captured using particular techniques. Phase One also identified the limitations of content analysis and similar mechanistic techniques and the reductionist nature of those pursuits. These insights shaped the constructionist epistemology and interpretivist stance adopted in this study.

Despite solutions being found to problems that arose, there remain in the study acknowledged weaknesses and limitations.

4.2.7.1 Acknowledged weaknesses

A weakness within this study was achieving the desired sample. Although I am unable to verify, the sampling in Phase Two may have resulted in some hospital sites using a self-selecting sample or PRHOs chosen because they were 'nice' rather than on their ability to do the job. Although strategies were implemented to improve the sampling technique, there was a limit to how much control I had over the clinical tutors or centre managers in ensuring that they followed instructions. Despite these problems, the purposive sample did generate data from PRHOs of both genders and from a variety of posts.

Although a theory on the nature of a particular 'risk' judgement (contacting a senior) is presented, as explained earlier, it has not been challenged through a process of

theoretical sampling. To assess the robustness of the theory, further work needs to be done. This would include addressing the following questions: does the theory accurately represent the concerns and considerations of the Foundation 1 doctor, if not, what has changed and what are the implication of this for the theory; what are individuals who are perceived to be poor in terms of asking for senior intervention doing differently and how does this fit with the theory; is the theory applicable to all doctor grades and if not, what dynamics or processes change with seniority; and can the judgement of gaining senior support be viewed as representative of other risk judgements? Questions such as these will allow the current theory to be challenged and developed.

The problems with the time it took to complete the analysis meant that the Phase One data analysis was incomplete before the organisation of the next phase. From Phase One to Phase Two this was not problematic because the primary aim of Phase One was to influence the direction of the second phase and it was clear, relatively quickly, what that ought to be. It is acknowledged however that if Phase Three, as was originally planned, was the means by which the conceptualised data was returned to the subjects, it would have been better conducted when the analysis from Phase Two had been completed. However, as it was, the Phase Three observation periods were central for appreciating the interactions PRHOs had with seniors, both in medicine and in surgery and in aiding the conceptualisation of the data. As such, Phase Three became an important stage in the analysis of Phase Two data rather than acting as a verification process which was its original purpose.

The findings presented in subsequent chapters are viewed as an interpretation and theorisation of what influences PRHOs' responses to judgement calls within a clinical setting and as an exploration of the relationship between these influences. There are a number of issues arising from the way that this study was conducted which need to be taken into account when reading this thesis. These will now be described.

4.2.7.2 Being a constructionist

The need for a constructionist approach to the data became evident through the analysis of the data in Phase One. The interview data came to be viewed as a PRHO's

construction of his reality, with my role being to piece these accounts together and construct a picture of those captured realities. This marked a shift for me from a quite traditional view of my role in a study (reporting the unsullied accounts of those researched) towards ownership of the results and recognising my influence on the analysis. Ultimately, this stance extended to viewing the findings as 'an' explanation rather than 'the' explanation of the relationship between the factors that influenced a judgement call. It was also appreciated that when the PRHOs spoke of their lives through their narratives, it exposed how they framed and interpreted their reality. This is not to suggest that the phenomenon under study was perceived to be a product of my, or the subject's, imagination. The phenomenon uncovered is viewed as an accurate presentation of a pre-registration life but studied within an interpretivist framework and as such, the findings represent a construction of an interpreted lived reality. As judgement was thought of as an interpretation of what is perceived (Chapter Three), the study phenomenon and research stance were viewed as congruent.

In terms of theoretical positioning, I believe that in Phase One I adopted (albeit unknowingly at the time) a theoretical position of constructivism, whilst in Phase Two I shifted to one of social constructivism. In Phase One the PRHOs were being invited to focus on hazards by me when asked to 'list the risks'. The PRHOs described their interpretation of those 'risks' that they perceived. The 'risks' described by the PRHOs were often shared, but explanations and interpretations could differ between individuals. For example, stress and anxiety were cited but the relationship between these, or the relationship these elements had with one another, varied in PRHOs' explanations. They appeared to be expressing personal constructs. A reason why this might have been the case was that the PRHOs had not discussed 'risk' in this way, nor was there any need for a shared understanding between them. Phase Two, however, focused on an aspect of professional practice where there was a shared cultural / professional understanding of 'the risks' embedded in the activity of asking for help and advice from a senior. As a consequence of this shared cultural / professional understanding there were mutual interpretations and comprehension and collective constructions in the PRHOs' narratives. These doubtlessly arose from the PRHOs working with others and being collectively engaged in determining whether or not it was appropriate to contact a senior.

As mentioned previously, in Phase Three the partly completed analysis was taken back to the PRHOs in what was naively considered to be part of the verification process. It was naïve because the expectation was that the PRHOs would accept or refute the emerging theory. The PRHOs did not engage with the conceptual nature of the analysis. Discussions were stilted, if they existed at all. For example, when a description of how seniors may manage a PRHO, one PRHO said 'You'll have to ask a senior about that'. The problems experienced may have been caused by the quality of the presentation but, more likely, although the PRHOs 'lived the life' it was not something that they had thought about. What was being described to them was an amalgamation and abstraction of their experiences but, on the whole, the individual PRHOs had not considered their work in this way, so could not contest or authenticate my conceptualisation. As a consequence of these presentations, arrangements were made to discuss the emerging findings with senior clinicians whom, it was believed, might be able to engage more conceptually with the data.

The sessions with seniors were more successful. Seniors were more engaged with the findings and were keen to illustrate my described conceptions with examples from their own experience. Although this differs from Lincoln and Guba's (1985) approach to member checking, it appeared to engage with a process analogous to it. Despite the seniors' engagement with the model and their discussion of it, there was still no criticism or critique. On reflection, this should have been anticipated. It was unlikely that the conceptual nature of the model could have been quickly assimilated for critical analysis by these audiences when it differed from their customary presentations.

4.2.7.3 Using PRHO perceptions

As the observations informed the analysis, all the data for this study was generated through interviews. As such, the data only captured what could be expressed by the PRHOs and probably, in terms of judgement, principally concerned deliberative judgements. As a result it needs to be acknowledged that the analysis and conclusions from this study are based on what PRHOs could disclose and that some elements of phenomena might remain undisclosed. This was not because the PRHOs did not want to talk about them, or that I had failed to uncover them (although these may also be considerations) but because, by their nature, certain things could not be described.

There are instances in the interviews where individuals recognised tacit knowledge in what they did. For example, some PRHOs appreciated that they were unable to verbalise how they knew a patient was very ill just by observing them. There were however a small minority of PRHOs who were able to articulate how they knew a patient was sick. These latter descriptions cannot be thought of as being the tacit knowledge that others could not express but it was felt that they were connected: perhaps these exceptional descriptions were rudimentary parts of what was for others tacit. This study cannot however claim to have exposed tacit knowledge although it is thought to have gained insight into aspects of judgement that had become so routinised it had or was becoming intuitive.

It could be argued that in the interviews the PRHOs were engaged in espoused theory: what was being described was what *ought* to be done, not necessarily what *was* done. Some PRHOs gave idealised description of practice where their needs were met and patient care was exemplary. There were others who described something that was much more messy, difficult and far from ideal. The idealised pictures of practice were initially frustrating but actually proved helpful in understanding the formal presentation of medicine and acted as useful juxtaposition to other stories. In this study the 'espoused theories' were of interest because they illustrated how one ought to act and what was viewed as desirable behaviour. As such, it gave insight into accepted ways of framing a clinical problem and the situational understanding the PRHOs perceived they needed to manage 'practice'. For this reason it was not seen as problematic to capture what could be labelled as espoused theory.

Relying only on the perspective of the PRHO has however meant that the data and the results from the analysis represent a view of practice that cannot be said to characterise all practice or reflect what others might think happens. For example, the control mechanisms described by the PRHOs may be stronger than this group recognised, or there may have been other factors that the seniors or nurses used and about which the PRHOs were oblivious. Although this is acknowledged, it is to be remembered that this study was concerned with the PRHOs' conceptions of how they thought about situations and how they ought to act (theories-of-action), rather than capturing an objective reality of actual events.

4.2.7.4 The definitive nature of 'risk' and 'judgement'

It is argued that this study does give insights into both risk and judgement but they are not presented here as the definitive descriptions of either: the decision to use only PRHOs and an interpretative stance to the analysis ensures this. Interviewing only the 'good' or 'nice' PRHOs (as perceived by centre managers) inevitably affects the generated theory.

What has been created from this study is perspectives on both 'risk' and 'judgement' that were generated from PRHO accounts and mediated through my interpretation. The sampling of PRHOs in Phase Two ensured the generated model of judgement represented a picture of factors that conform to standard and, more importantly, acceptable working practices. It is important to acknowledge these limiting factors but also to add that these decisions were made knowing the compromises that these would cause. To have captured the definitive descriptors of risk and judgement, different grades of doctor and multiple professional perspectives would need to have been sought.

The findings from this study are perceived as valuable because they demonstrate how junior doctors make sense of the clinical context and illustrate what is being picked up on, and the mores with which they need to comply. Through these, an interpretation of the clinical context and practice has been described and the important mediating factors with which they need to comply have been identified. This has allowed potential implications for the development of Foundation programmes to be anticipated.

A question remains: have the findings from this study been a product of the research rather than existing as an aspect of practice and independent of the study? I believe that this was an issue in Phase One where the questions raised by me about 'risk' would not have been considered by the PRHOs if I had not asked them. It was apparent that many of the PRHOs had not conceptualised the term 'risk' in any meaningful way until questioned. That is not to suggest that there was not an appreciation of 'risk' or that 'risks' were not considered as part of practice. What is felt to be a more accurate explanation was that the PRHOs had considered 'risks' but at an operational level, not in a way which allowed them to discuss it abstractly. This was not

true of Phase Two, where the PRHOs had no problems describing and discussing the process and principles underpinning contacting a senior. However, the PRHOs were being asked at this time to discuss something that was less abstract than the concept of 'risk'. If the PRHOs had been asked to talk about 'judgement', similar problems may have ensued.

The above critique describes the recognised boundaries of this study's findings. The approach taken is also viewed as its strength. This study takes an unconventional standpoint in viewing 'risk' and clinical work in medicine. By viewing these from the perspective of the PRHO, the findings give insight into how risk is perceived and assessed in a clinical context and the developed theory suggests a way of explaining 'risk in practice' which is markedly different from the majority of the reviewed literature. It is argued that the conceptualisations generated here come closer to the lived reality of clinicians because it was generated by them although mediated through me.

The study findings although made up from multiple individuals, are felt to capture the collective consciousness of how medicine thinks about practice through the eyes of its juniors. These are thought to be important based on the premise that, if things are thought of and perceived as significant, important or 'risky', it will affect how situations are actioned and consequently will have a direct impact on clinical practice. For this reason, this study's conclusions and recommendations are thought useful to clinical practice.

The true value of the study and tests to its credibility will come from presenting this thesis to a wider audience and specifically to clinical educators who are immersed in conceptualising practice and training.

Chapter Five - Exploring 'risk' and finding the focus for Phase Two

5.0 Introduction

The aim of this study was to generate a conceptual understanding of clinical judgement in a 'risky' situation. Phase One was used to explore the use of the term 'risk' in PRHO practice so that the study could focus on a situation that exemplified 'risk' for PRHOs. It was also used to detect potential methodological issues that would inform subsequent phases.

The analysis of the Phase One interviews created a number of challenges which essentially provided the first substantive findings of the study. Some of the challenges stemmed from the interviews and the practicalities of describing a term which, although in common usage in medicine, proved to be ambiguous. This was demonstrated firstly by the PRHOs' responses to being asked to 'list the risks' and then within their descriptions, where multiple semantic applications were used when referring to the term. Other challenges arose from the analysis and illustrated such complexity that it contested the functionality of simply developing a list of the 'risks' for clinical practice. The complexity of 'risk' as it was applied by the PRHOs to clinical practice is considered in the discussion chapter.

The challenges experienced in Phase One in both the data collection and analysis stimulated critical reflection and consequently deeper insight into the nature of the enquiry as well as a re-think of the analytical approach adopted. Through the questioning and challenges came the realisation that the 'way forward' in Phase Two required refocusing the enquiry to an activity that was an exemplar of a 'risk' judgement call within the clinical setting rather than a more detailed study of one of the identified 'risks'.

The following chapter describes the data from the individual interviews of Phase One. The data are reported in a manner that is commensurate with the analysis conducted. The statements made replicate the majority view of the PRHOs unless otherwise stated. Cases which were contrary to the norm are described.

5.1 Phase One - data analysis and presentation

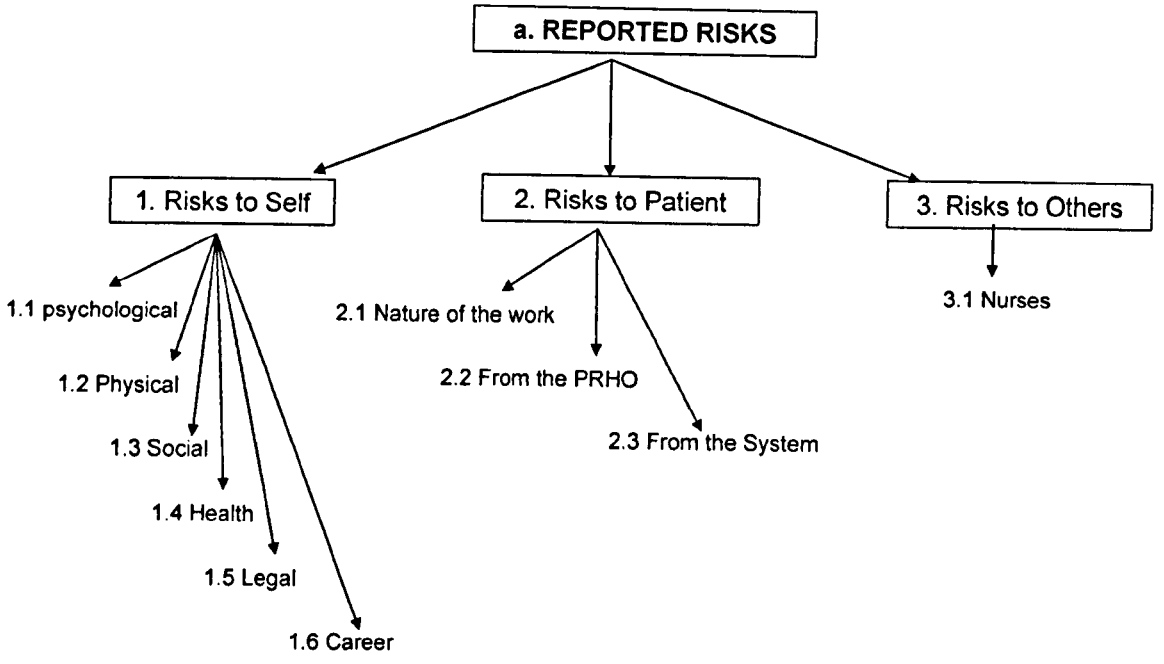
Two types of analysis were undertaken on the Phase One data: the identification of 'reported risks' (5.2) and the generation of free nodes through open coding (5.3).

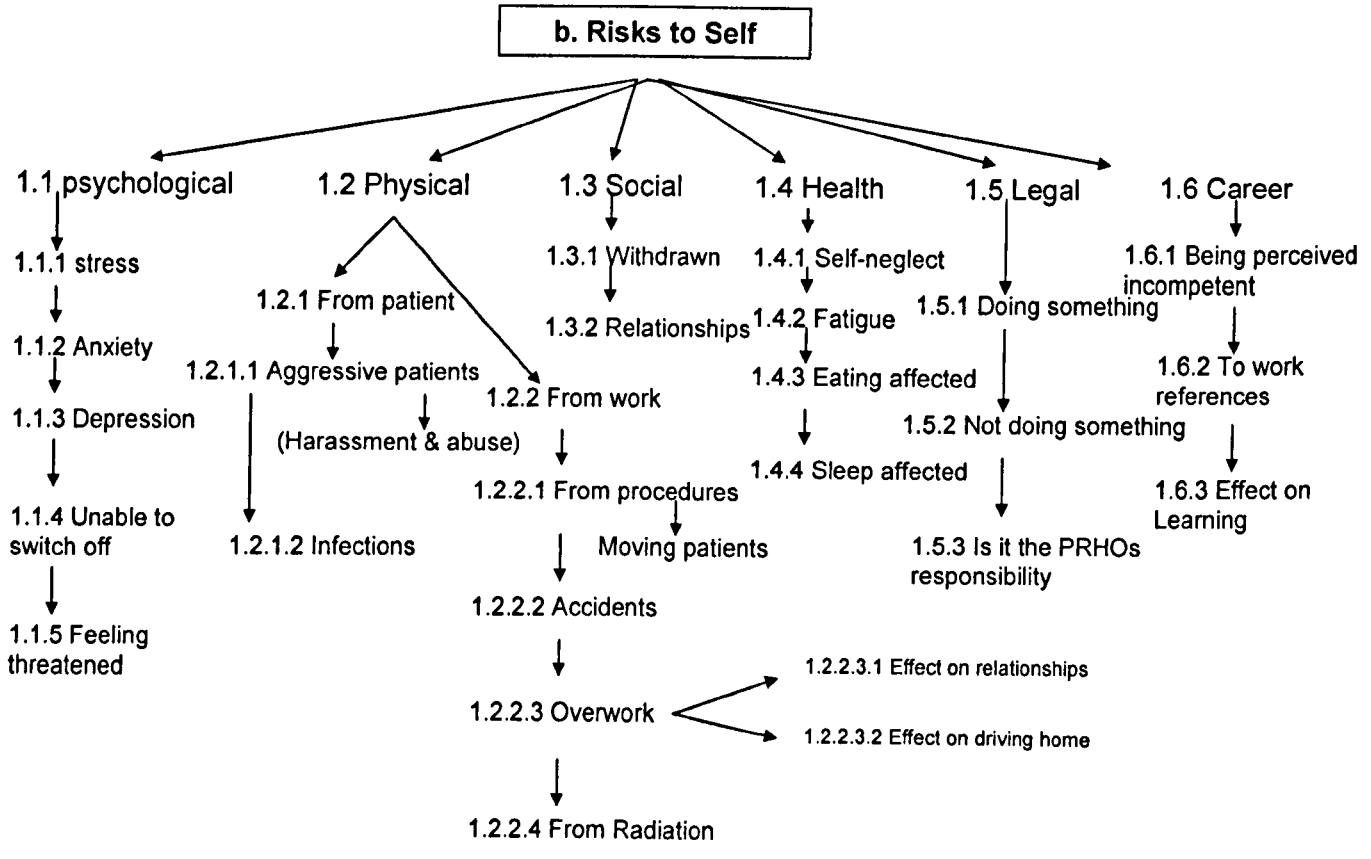
For the first analysis, 'risks' were identified from the data-sheets and the transcripts when a PRHO labelled something as a 'risk'. These are referred to as 'reported risks' and are represented by the tree structures in Figures 4a-c and are underlined in the text.

The transcripts were also categorised into free nodes; nodes which emerged from the data and were collapsed into groupings. These are presented in Figure 5. The digits at the beginning of the node label represent the original free node number. This analysis was undertaken to obtain insight into the descriptions of 'the risks in clinical practice' which would otherwise have been lost if the analysis had only focused on data where the PRHOs directly described something as 'a risk'.

Although these analyses were conducted separately, as the free nodes and 'reported risks' were drawn from the same data, there were inevitably a number of similarities in their contents. Presented below are firstly the categories gained from the 'reported risk' analysis. Included with these are the comparable free nodes *(written in italics)* that were thought to add to that particular 'reported risk'. After these, the free nodes which were thought to give an alternative perspective or additional insight are presented.

Figure 4 – The 'reported risks'





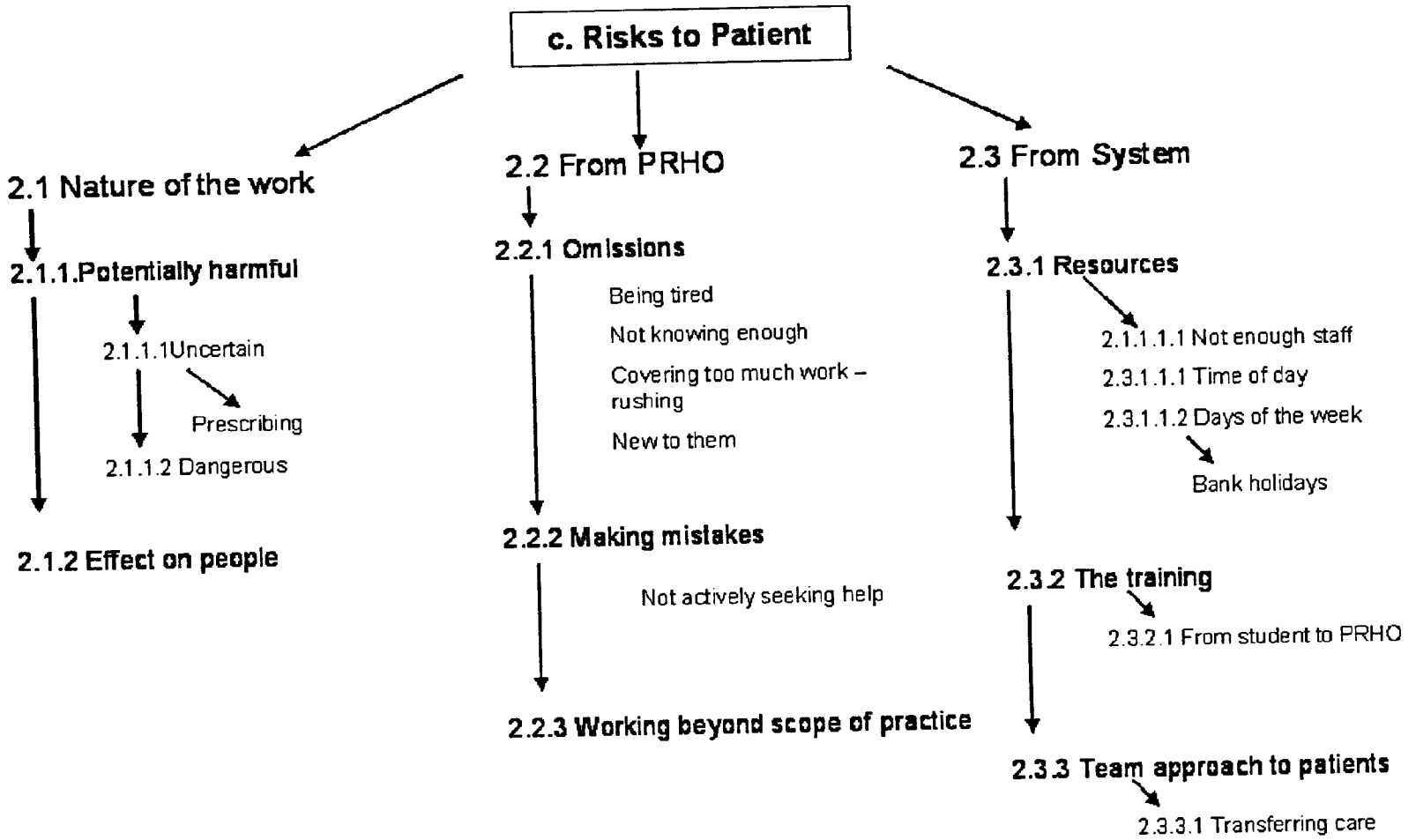

c. Risks to Patient
2.1 Nature of the work
2.1.1.Potentially harmful
2.1.1.1Uncertain
Prescribing
2.1.1.2 Dangerous
2.1.2 Effect on people
2.2 From PRHO
2.2.1 Omissions
Being tired
Not knowing enough
Covering too much work – rushing
New to them
2.2.2 Making mistakes
Not actively seeking help
2.2.3 Working beyond scope of practice
2.3 From System
2.3.1 Resources
2.1.1.1.1 Not enough staff
2.3.1.1.1 Time of day
2.3.1.1.2 Days of the week
Bank holidays
2.3.2 The training
2.3.2.1 From student to PRHO
2.3.3 Team approach to patients
2.3.3.1 Transferring care

Figure 5 – Identified free nodes grouped into categories

(* Contents not included in the text but covered in other nodes)

6 RISK AND THE PRHO - Descriptions of 'risk' in relation to the pre-registration year.
- 67 Relating term to clinical practice*
- 2 Risk Factors - Features PRHOs associated with 'risk'.
  - 13 Being first to be called
  - 18 On-call
  - 26 Being under pressures
  - 27 Inexperience
  - 31 Changing jobs
  - 42 Effects of tiredness and sleeplessness
  - 48 Time of the day / week
  - 58 Positives of risk
  - 63 Talking back
  - 66 Threat from colleague
  - 7 Change the system
- 3 Risk relationships - Making comparisons between 'risks' and discussing relationships.
  - 5 Between self and patient
  - 29 Between factors*
  - 52 Differentiating risk
  - 57 Specific situations
  - 68 Cost to benefit ratio / gains to losses
- 4 Effect of risk
  - 6 Risk causing anxiety
- 16 Not appropriate to me
- 20 Use of the term risk*
- 24 Worry
- 34 Managing risk
- 44 The things I think about / don't think about
- 45 Can handle it
  - 73 Limits of my skills*
- 47 Won't do that

2 PRHO CULTURE – Descriptions of the world in which the PRHO inhabited
- 1 Factors affecting your working ability*
  - 49 Tiredness
- 5 Support systems
  - 9 Mechanisms for helping
  - 10 Not using help
  - 28 Lack of support
  - 30 Asking for help
  - 56 Supervised and supported
- 9 Life as a PRHO
  - 2 Happens to everyone
  - 4 Everyday life
  - 8 Living with anxiety and stress

11 Living with uncertainty
22 Inevitable
37 Learned from the experience
41 Learning on the job
50 Doing things differently
53 Frustrations
64 Nurses and PRHOs
65 Training
12 Being responsible
61 Becoming an SHO
14 Differences between:
3 People
19 Medicine and surgery
25 Professions
39 Students versus PRHO role
72 Then and now
69 Genders
70 Consultants
71 Hospitals
36 Collective knowledge
35 Putting self in patient's shoes* (relates to describing how patients might feel)
40 Ideal versus reality
62 Being aware*

5.1.1 Phase One sample

Thirty-two pre-registration house officers were interviewed individually over five sites. The sites included one large teaching hospital (one of two in the Deanery), a large General hospital (one of two in the Deanery) and three medium sized hospitals (three of eleven in the Deanery). The order in which the PRHOs were interviewed per sites was random.

Of the PRHOs who took part, sixteen were female and sixteen male. Twenty-eight (87.5%) were Newcastle graduates, two (6.3%) were graduates from other medical schools in the UK, one (3.1%) was a graduate from overseas and one who had attended more than one medical school but had graduated from Newcastle. Twenty-eight (87.5%) were doing their second house job and four (12.5%) their first. All those doing their first house jobs were male. Twenty (62.5%) of the PRHOs were in medicine and twelve (37.5%) were in surgery. For each gender, there were ten in medicine and six in surgery.

Each interview began with the PRHOs being asked to complete a data-sheet that collected their demographic details (appendix E). At the end of the sheet there was a box in which they were asked to 'List the risks in clinical practice'. Once the data sheet was completed the interview began by asking the PRHO to "tell me about the risks in clinical practice".

5.2 The Reported Risk Data

5.2.1 Risk to self

The quotes contained under this node heading were where the PRHO related the term 'risk' to himself. The following general headings were identified: 1.1 psychological, 1.2 physical, 1.3 social, 1.4 health, 1.5 legal and 1.6 career.

5.2.1.1 Psychological

'Risk' was used in terms of the psychological or mental 'risks' of the job.

> 'I've split them mainly into two, one being health and the other one being more psychological and mental.' (C10:11-12)

'Stress', 'anxiety', 'depression', 'unable to switch off' and 'feeling threatened' were also cited as 'risks'. These were viewed as sub-categories of psychological 'risks'.

Stress was related predominantly to the volume of work and the time limits which the PRHO had for achieving a task and the uncertainty they felt in what they were doing. Seniors, other professions and patients could add to the PRHOs' stress by unsupportive or uncooperative behaviour.

In their descriptions of stress PRHOs described how they suffered from it or described stress as a 'risk' but one that was not applicable to them.

Under the free node the *'effect of risk'*, two PRHOs described 'risk' as causing anxiety.

5.2.1.2 Physical

'Physical risks' was a phrase used by the PRHOs.

'Em, the first thing I was thinking about was and to try to categorise is physical risks which is probably one of the more obvious things.' (I31:9-11)

These were often related to physical injury from the patients or the work that the PRHO did in a busy environment. Physical 'risks' were categorised into 'those from patients' and 'those from work'.

5.2.1.2.1 From patients - The PRHOs described the 'risk' of violence from patients.

'Em and obviously there's the risk of you might be assaulted, there's always the risk you might get assaulted by a patient.' (C11:28-30)

Acts of violence from patients were associated with medical conditions: alcohol withdrawal, geriatric and elderly demented patients, confused patients, psychiatric illness and drug abuse.

PRHOs described the 'risk' to themselves from infections by working with ill patients. These infections were from respiratory or faecal-oral spread.

'Risk of infection - we have had a couple of periods where everybody's been struck down with the D and V, and washing your hands in-between examining every patient on your ward round. Quite often these are impractical but I think everybody's attention been drawn to it more after a dose of the squits' (I32:49-53).

5.2.1.2.2 From work - PRHOs identified 'risks' from hospital work. This included 'risks' from procedures, accidents, over-work and radiation. PRHOs also described back-problems resulting from moving patients.

Needle-stick injuries were frequently cited as a 'risk' from procedures.

'So the most basic one is say needle-stick injury, that's a risk that you might

come in contact with' (I29:19-20)

Whilst 'procedures' (1.2.2.1) was concerned with the potential consequences of doing a procedure, accidents (1.2.2.2) were not related directly to a procedure or task but where something unforeseen which happened whilst going about one's work.

PRHOs also related the term 'risk' to overwork.

> 'As well as risks of violence and added pressure, risks of overwork' (C16:10-11).

PRHOs described the effect overwork had on their personal relationships. Overwork was related to danger when driving home. A PRHO described rushing all day and this extending to driving home. Another quote also referred to driving home as a 'risk' but in this instance it was from being tired after a heavy shift and then having to drive.

5.2.1.3 Social

PRHOs listed and described how their social lives were affected by the job and discussed these in terms of 'risks'.

PRHOs described becoming socially withdrawn as a 'risk'. In some instances withdrawal was caused by the practical constraints of working shifts as well as one's friends from University also working shifts in other hospitals throughout the deanery or country. PRHOs described just being too tired to socialise or being unable to discuss their experiences with family and friends who were not doctors.

PRHOs cited as a 'risk' not having time to see people and potentially being too busy working to engage in a social life. The effect on relationships was not only a 'risk' because PRHOs perceived the lack of social time affected their maintenance of relationships, but also because on their time off they were too tired to engage with others.

5.2.1.4 Health

PRHOs explicitly described 'risk' to their own heath. 'Health' as the term was being used by PRHOs was a broad, general description and encapsulated several issues under this single heading.

> 'risks to yourself personal – not directly due to patients but I think there's a slight risk to our own health: we do have a poor diet we do have poor sleep. (A8:74-76)

Factors the PRHOs linked to changes in health were self-neglect, fatigue, bad eating patterns and lack of sleep. There were also statements about working all day without drinking or going to the toilet:

> 'The main risks to me is things like I don't drink during the day, so you forget to go to the loo and things like that, you go home and you think oh I've not been to the toilet and things like that but actually physical risks em things that's fine.' (G27:96-100)

Fatigue and tiredness were also seen as a factor affecting health:

> 'Exhaustion? Well there's a risk to your health there isn't there'. (G23:113-114)

The free node data reiterated the *effect of tiredness and sleeplessness.*

5.2.1.5 Legal

PRHOs recognised 'risks' from the legal accountability of the job:

> 'Em and then risks in things like errors you might make, medical errors, risk of litigation, things like that.'(C16:8-10)

Medico-legal 'risks' were viewed as arising from things the PRHO did and did not do. Although there were different reports on how responsible the PRHOs were, medico-legally, the need to 'cover yourself' was evident from their accounts.

5.2.1.6 Career

This node encapsulated the perceived 'risks' to the PRHO's career:

> 'Risk in terms of at work this is – em in terms of my career as well. You know getting things wrong and messing things up, and that's a risk.' (C15;121-123)

Identified under this heading were the 'risk' of being perceived as incompetent, the 'risk' to work references and 'risks' to learning.

In the free nodes the PRHOs described the *threat from a colleague* in terms of being shouted at, 'bollocked' or 'told-off' by seniors. None of the PRHOs actually described having experienced this, only that it was anticipated if their actions were inappropriate. The 'risk' to a PRHO's ego from having to declare his lack of knowledge was not enjoyed but from comments held in the free nodes under *'risk relationships',* it appeared to be viewed as acceptable when patient welfare was 'at risk'.

The PRHOs described instances where they had been concerned about how they were perceived by their seniors and described the 'risk' to their career through gaining poor references. There was one case held in the free nodes under *'threat from colleagues'* where the PRHO perceived a real threat to his career from a nurse who constantly reported the PRHO's 'mistakes' to his consultant.

A PRHO (A6) cited 'effect on learning' on the data sheet as a 'risk' in his current post and the implications this had for future posts. Held in a free node, another PRHO (A5) described the *positives of risk;* risk-taking being necessary for learning and gaining experience.

5.2.2 Risk to patients

PRHOs indicated that as well as 'risks' to themselves there were also 'risks to patients'.

> 'It's probably an enormous risk to patients to be honest really' (A3:174)

The 'risk to patients' were categorised under: 'Nature of the work', 'From the PRHO'

and 'From the System'.

5.2.2.1 Nature of the work

PRHOs acknowledged that the nature of medicine was 'risky' to patients. 'Risk' was equated to potentially harming the patient through treatments, drugs or invasive techniques. 'Risk' was also equated to the uncertainty of practice.

> 'Similarly you sometimes give medication to thin people's blood and sometimes they can go – the Consultant says they can go home tomorrow – but it's not very well controlled and you haven't got a handle on how much medication to give them to keep the blood correctly thinned. You know, he's said they can go home but still you're taking a risk really that you're giving them too much or too little. Normally the Consultant's right but it's just – again it's another risk.' (C14:101-108)

5.2.2.2 From the PRHO

PRHOs acknowledged the 'risks' they themselves brought to patient care:

> 'Er, well a load of new doctors come on to the ward in August and all of us are a pretty big risk to the patient ... risk to patient – well every treatment carries the same risk so there's risks there. Em then at the same time there's also risks no matter how good anyone is if they're tired and run down or disillusioned they are not going to be as interested, so they're not going to put the effort into their work, you know puts a patient at risk.' (E17:261-267)

> 'Em, the risk to patients from the procedures that we just aren't very good at, and we do them because we have to practise, but the complications are a lot more likely to happen, and we don't do them because we won't do them so well.' (G23:442-445)

PRHOs described the 'risks' their grade brought to patient care and gave explanations as to why these arose. These explanations were also labelled as 'risks'. The PRHOs may make mistakes, make omissions and work beyond their scope of practice in

diagnosis, management and care of the patient. The reasons the PRHOs gave for these were 'being tired', 'not having enough staff to support them', 'not knowing enough', 'work being new to them', 'not seeking help' or 'rushing'.

PRHOs saw 'risks' to their patients from them omitting to do something and this arose from simply forgetting to do something but also not recognising it as needed. Although the latter was viewed as a product of their inexperience, forgetting to do something was also caused by being tired, having too much to do or from the crossover between staff shifts.

The mistakes the PRHOs described were treating someone for the wrong condition, wrong management decisions, not seeking help, from prescriptions, administering the wrong drugs, administering contra-indicated drug, identifying the wrong problems, asking the wrong questions in the history, explaining things badly or wrongly or looking for the wrong clinical findings.

As a newly qualified clinician, the PRHO had limited experience and knowledge about the clinical situations they faced. Other situations were completely new to them. Because of this they recognised that they were more likely to make mistakes and miss things than more experienced clinicians.

> 'I could only do so much for them and there were probably lots of things that I wasn't even realising were problems and were going to cause problems, that if someone senior or someone more experienced had looked over them, they'd be able to pick them up straight away' (A7:455-459)

The PRHOs' lack of knowledge was reported as making it difficult for them to differentiate between choices and therefore difficult to make decisions.

> 'You know there are certain protocols to do things, but sometimes you think - Oh I've seen someone do it a different way and you don't know whether you're going to do it the right way. I suppose you take a risk by doing it the way you think works because you've seen it work before but it's not how the person

you're working for normally works, that kind of thing' (E22:12-18)

PRHOs reported being less thorough, more likely to misjudge things or just not to be as interested in patients when they were tired. Tiredness had an effect on their concentration and was a reason why they did things wrongly or badly or why they missed things. Covering too much work was also problematic and meant that the PRHO might have to rush, resulting in their making mistakes or missing things.

> 'Em the risks that means I'm faced with is that, I'm risking mis-managing patients because I haven't got people to support me or ask, I'm risking missing sick patients because I haven't physically got the time and I haven't got more than one pair of hands. Em and there is a risk to, I mean there is a whole risk to the general quality of the care these patients are getting is poor, its not as good as it could be because there aren't physically enough doctors around.' (G27:42-49)

Captured in the free nodes was the PRHOs' descriptions of *being under pressure* in their job from being very busy and having many tasks to perform within a given time period. These meant compromises were made such as being selective in what they did and being more likely to rush things. As a consequence, they were more likely to miss things or make mistakes. Time pressures made safe practice undesirable because things took too long and PRHOs described compromising safe practices such as doing complete examinations, checking things and looking after their own safety. These compromises did not always have positive outcomes. Taking more time over things compensated for a PRHO's lack of experience but time was not always available. In these instances the PRHO relied on others to pick up on things that they had missed. PRHOs recognised everyone else was busy which meant that they might have to take on more than they would wish. The pressures of time were stressful because the PRHO was faced with doing things well (or thoroughly) or doing things fast. Each had consequences.

PRHOs also described the positive effects of being under pressure. They could test themselves and learn from these pressured experiences whilst gaining feelings of self-

worth. This came from being a useful member of the clinical team.

The free node *inexperience* suggested that because procedures were new or relatively new to the PRHO he had limited knowledge of what to do and limited experience of recognising conditions and problems. Inexperience was a *risk factor*. Their inexperience was managed by input from the experienced team until they gained 'sufficient' experience. The PRHO needed to be able to recognise when it was appropriate to engage a senior.

Although doing a procedure for the first time was a 'risk' to the patient it could be perceived appropriate if conducted with adequate supervision and support as it was necessary for the PRHO to learn how to do it. The data suggested that the PRHO recognised that there were 'risks' from having an inexperienced person being first in line to manage patients but again, support from seniors prevented PRHOs missing things or delivering inappropriate treatment. When the PRHOs *changed jobs*, 'inexperience' again became an issue, especially if seniors thought that the PRHO could be considered experienced even though they had done only one job.

Working beyond their scope of practice related to the PRHO taking on activities that were beyond his abilities and the range of PRHO tasks.

> 'There is obviously the risk of us actually doing them harm, you know getting something wrong, the risk of us working beyond our means' (A3:247-249)

If the PRHO recognised that he was not competent, or the task was beyond his competence, he was expected to seek assistance. Therefore, the 'risk' may come from the PRHO not recognising the task as being beyond his ability and consequently being willing to continue without senior input. It could also be caused by the practical issues of actually obtaining assistance.

> 'I would make sure there was someone there, so I don't think of those things – .... But I mean, yeah, once or twice I suppose I've had to do a procedure where

> I've only done it once or twice before and there has been a risk there' (A4:125-142)

Not having enough support from more senior colleagues removed an important safety mechanism for ensuring that the PRHOs did not miss things or from making mistakes.

> 'Em, the risks I am faced with is that, I'm risking mis-managing patients because I haven't got people to support me or ask' (G27:42-44).

By not having enough support the PRHO might find himself working beyond his scope of practice.

Held within the free nodes were PRHOs' descriptions of the relationship *between* 'risks' *to self and* to *patients*. The PRHO could cause 'risks' to patients through tiredness and being under pressure because these made him less thorough, careful or able. Tiredness and being under pressure were also 'risks' to the PRHO as they were more likely to cause him to injure himself (e.g. needle-stick or while driving home) or through litigation and the psychological effect of knowing that you had caused harm to a patient. 'Risks' to the patients were stated as being more important than the 'risks' to self.

> 'Obviously it doesn't mean that I have disregard for my own safety or my own risk, I take as many precautions as I can, but more important to me, what I see day to day, is this problem of my patients basically.' (I29: 457-460)

5.2.2.3 <u>From the system</u>

PRHOs described 'risks' that were inherent within the hospital where they worked and in the health service generally:

> 'In there (*referring to the datasheet box*) I've put inadequate communication, inadequate staffing. Just if things aren't communicated between nursing staff and doctors, things aren't handed over from one doctor to another if you've got a poorly patient and you don't realise how ill someone is you're putting that

patient at risk.' (C12:122-126)

Statements held within this category included the effect of bank holidays and weekends on patient care.

The PRHOs described 'risks' associated with the lack of resources. The 'lack of beds' and issues with 'equipment' were mentioned in terms of 'risks' to patients. PRHOs described 'risks' arising from there not being enough staff for the amount of work to be done.

> '..what happened to me last week I think sums up one of the most risky things really. I don't know about being understaffed, this hospital is really understaffed - it's a clinical risk in itself'. (A7:56-58)

Night-time, weekends and bank holidays were cited as 'more risky' because there were fewer people around to help and to give advice. As well as issues with the availability of support, the PRHOs reported having too much work to do because there was less staff. Bank holidays were also viewed as problematic because the medical care of patients was predominantly left to the PRHOs.

The PRHOs described the importance of the team approach to patient care within the system. The breaking down of the team had a significant impact on patients and the efficacy of the PRHO, leaving the PRHO vulnerable to the 'risks' cited previously. PRHOs acknowledged how much 'the team' relied on each other.

The free node *being the first one to be called* described how, being the first doctor to arrive on the ward meant that there was uncertainty as to what one would find; they could be met with hostility from staff, patients and relatives. PRHOs were also aware that by being the first doctor to see the patient, they were accountable for that patient's medical well-being until a senior was contacted. Being the first one to be called could be stressful.

Problems with *on-call* revolved around covering large geographical sections of the

hospital, being tired, being busy and, as a consequence, there was the potential for the PRHO not to pick up on important issues. However, because the work was not routine, and was known to be taxing, the PRHOs may be more alert to problems. For some, the camaraderie with others was a positive aspect of on-call, as was learning from the continuity of care they were able to give to patients.

Although the PRHOs reported differences *between hospitals,* each employing different systems of working, the *time of day and week* was seen as problematic because of the effect this had on how many senior staff were available to help the PRHO. Whilst night time had less staff, it was often, if not always, less busy so it was viewed by those who described it, as being less problematic. Weekends and especially bank-holidays were demanding and could be problematic for non-acute patients because senior staff would need to focus on acute cases.

Captured in the free nodes was the problem of *talking back* and challenging decisions made by those who were viewed as more knowledgeable and experienced than themselves. This type of challenge may have been difficult because in making such a challenge, the PRHO was stepping out of his established role within the team. This did not mean that the PRHO would not challenge.

> 'That's probably one of the most difficult situations to handle as a House Officer, when to go over someone else's head. Because, you know, if your Seniors said 'No this is fine' and you say 'Well I'm not happy with it', it's quite difficult 'cos you're questioning their professional ability and surgeons hate that.' (I31:365-370)

In the free nodes, one PRHO described being concerned with the way things were done and had variable success in *changing established systems* of work. One success was redesigning a patient form so that it matched a computer screen presentation of results.

The PRHOs described the 'risks' to the patient when they first undertook their role as a PRHO. Learning-on-the-job also had inherent risks and these were identified as

'reported risks' and within the free node *'training'*. One PRHO described there being more chance of 'doing things' in a district hospital than in a central hospital.

5.2.3 Risk to others

PRHOs made reference to 'risks to others', including other staff and, specifically, nurses. These statements referred to other staff being 'at risk' because of the actions of the PRHO and the medical staff. The 'risks' the PRHOs referred to arose directly from PRHO action and from 'the others' not having enough medical support. A PRHO also described 'risk to the team' from a bad on-call which caused irritability within the team and ultimately affected team morale.

A PRHO wrote on the data-sheet 'Risks to other staff' and described how nurses were prone to the same 'risks' as PRHO but to different degrees. The nurses were perceived to be less vulnerable from litigation but, because of the nature of their work, more likely to be at 'risk' from physical injury.

5.3 Free Node Data

The data held under the free node 'Risk and the PRHO' repeated the findings held under the 'Reported Risks' but the free node analysis gave a richness and contextual insight into the PRHO perspective. The findings from the free nodes, which are not covered by the descriptions of the 'reported risks', are given below. These are presented with few quotes because illustrations of the points made are supported by quotes in other sections of this chapter and, more importantly, are themes that are reiterated in the next chapter.

The findings presented below illustrate the level of engagement I had with the subject at the end of Phase One and whilst beginning to plan Phase Two.

5.3.1 Risk and the PRHO

PRHOs described how *specific situations* influenced whether the label of 'risk' was appropriate. In this node the PRHOs described how the same 'risk' would have more weighting in one situation than another. The examples given were: weighing up how difficult a task was to do, the perceived potential for 'getting it wrong', how much of a

real threat the aggressive behaviour was, the likelihood of contracting HIV from patients and when it was appropriate / functional to get supervision or senior help. The PRHOs also described how the change in day, experience of the PRHO, fragility of the patient and the time available to think things through, also influenced 'risk'.

Weighing up the 'risks' was described by some in terms of the *gains and losses* of particular actions. The examples held under this node were specific instances of 'risks' and no general conclusions were drawn. However the data did indicate that the PRHOs recognised multiple 'risks' being present simultaneously and needed to consider the 'benefit-to-loss' from their actions.

PRHOs told stories about things that had happened or negative behaviours that others manifested. What characterised these stories was that what had happened to these 'others' was disputed as being relevant to themselves. The stories were of 'risks' but 'risks' that were *'not appropriate to me'*.

From the quotes held within the node *'worry'*, the term appeared to express what these particular PRHOs were concerned about and perhaps engaged with in practice. For one PRHO, worry and 'risk' were linked.

> 'I mean anything I worry about I consider taking a risk. If I'm not happy about doing something then I worry about it because it'll be a risk that I just don't know if it's right to do or not'. (C14;189-192)

The PRHOs described *managing 'risks'* and included descriptions of those 'risks' that they had identified. No overarching remarks could be made about these data because of the many different examples given.

The PRHOs described what they *thought about / did not think about* in their everyday work practices. The role of experience, stories and reaction from seniors were all reported as functional in heightening the PRHOs' awareness of 'risks'. A feature of these data was that 'risks' identified in an interview could be described by the same PRHO as unproblematic in practice. The 'risks' that these PRHOs described being able

to *handle* were all related to 'risks to self': the effect of long hours, tiredness, stress, loss of sleep and to their social life.

It appeared from this section of the transcripts that the unfamiliar and the dangerous 'risks' were reported as more likely to evoke a change in routinised behaviour by the PRHOs. For 'risks' that were present in everyday situations, the data indicated that only if potential consequences actually happened did the PRHO then think about the 'risk'.

Under the node entitled *won't do that* the PRHOs described the activities or actions that they would not take on or do. Implicit in these statements was the importance of patient safety and the PRHO's responsibility in maintaining it. This responsibility extended to refusing to undertake an activity or procedure even when instructed to do so by a senior.

5.3.2 PRHO Culture

Throughout the interviews, the PRHOs made reference to being and working as a pre-registration house officer. The following is an account of the data held in free nodes which described the pre-registration year.

5.3.2.1 Support systems

PRHOs described *mechanisms for helping* them which illustrated the functional nature of the support and help the PRHO got in reducing the 'risks' to the patient and themselves from the medical team, specifically SHOs and, to a lesser extent, SpRs, nurses and allied professions. The supportive structure of the team made the PRHOs and patients less vulnerable to some of the 'risks' identified by the PRHOs such as practical, legal, career as well as psychological 'risks'. By checking the PRHO's work, the seniors were an important mechanism for reducing the 'risks' to the patient. The PRHOs recognised that if seniors had doubts about a PRHO's ability or the PRHO was 'new', they would increase their input until the PRHO manifested behaviours that demonstrated they could, and would, act responsibly.

Although PRHOs described the importance of senior help they also described *not*

using help or not engaging a senior. The PRHOs appreciated that a senior could not always be with them and part of their 'responsibility' to the team was to contact seniors only when it was judged necessary.

Reports about seeking senior support indicated that people varied in what they did; some were reluctant to ask whilst others did frequently. 'Who the senior was', was cited as influencing whether or not help would be requested.

PRHOs described the effect the *lack of support* had on patient care and themselves. This lack of senior support again indicated the importance of the seniors to the functioning of the PRHO. PRHOs described seniors being unable to come or not coming when asked, or seniors intimating to the PRHOs that they did not want to be contacted. PRHOs also described a lack of support from other colleagues with whom they worked and the necessity of being in a team that was supportive of them and their needs.

The PRHOs described the process of *asking for help*. The quotes held within this node reflected the variability that existed in asking for help: variability within PRHOs and their willingness /unwillingness to contact a senior and the variability in the responses the PRHO got when asking others. The PRHOs also described how the time of day affected asking for help and how the availability of people and the need to ask for help changed over time as the PRHO became more experienced. The PRHOs described having to know who and where to ask, when to ask and how to gain help as well as knowing their limits. The statements indicated that the PRHOs needed to calculate how immediately they needed senior intervention.

PRHOs described being *supervised and supported* by seniors. There was not enough information to differentiate between the terms of supervision and support. The quotes did, however, suggest that again multiple factors determined whether a PRHO needed supervision and support. The factors listed by PRHOs were the nature of the procedure, the feelings of the PRHO, the PRHO's previous experience, time pressures and what the PRHO thought they ought to do. PRHOs also recognised the value of senior supervision and support for learning and for talking things through.

5.3.2.2 Life as a House officer

Throughout the interviews the PRHOs described their lives as house officers. PRHOs recognised that the negative aspects of the job such as tiredness, stress, the *frustrations* and making mistakes were things that were *happening to everyone* and were part of *everyday life,* as were *living with anxiety* and *uncertainty.* These negative elements were perceived as *inevitable.*

PRHOs described *learning from their* clinical *experiences* and the important messages they had personally gained from *doing the job.* PRHOs also described how, from experience, and with hindsight, they would have *done things differently* in specific instances. They learned from their experiences.

PRHOs' interactions with *nurses* were complex. Nurses appeared to be viewed as great allies and important within the first few months of practice when learning how to do the job. Nurses were also problematic as they placed demands on PRHO to see their patients quickly or administer treatments with which the PRHO might not agree.

5.3.2.3 Being Responsible

The statements contained within this node indicated the importance of the PRHOs' feelings of responsibility towards their patients, the team, and to their role as doctors. These suggested that the PRHOs were not only describing their legal responsibility but also their moral responsibility as a doctor.

PRHO 'responsibility' appeared bound up with knowing his capabilities, how much to do without senior intervention, knowing when he was not functioning and taking steps to address these. The added incentive of gaining senior help and support meant that 'responsibility' was passed onwards and upwards; nurses did this to them, they then did it to their SHOs.

The data suggested that PRHOs started the pre-registration year unaware of how much 'responsibility' to take upon themselves but learned through experience what was appropriate. The move from *PRHO to SHO* was viewed as representing a significant increase in responsibility for these PRHOs.

5.3.2.4 Differences.....

PRHOs described differences between PRHOs, medicine and surgery, professions, being a student and a PRHO, gender, consultants, hospitals and how it was at the beginning and is now.

The differences PRHOs recognised *between people* were how they managed or needed to manage themselves and how they managed others. PRHOs also described differences in the coping strategies amongst PRHOs.

PRHOs described differences in the way that *medicine and surgery* worked. The PRHOs reported practicing only 'medicine' in both medical and surgical posts. In a medical job there were more seniors available to call upon because the seniors and the PRHOs both worked on the ward. In surgery, seniors worked in theatre whilst the PRHOs worked on the ward. These differences had consequences when the PRHO needed input from seniors. Surgeons were also perceived as having limited or as much knowledge of medicine as the PRHO himself. However, medicine was viewed as more demanding and with sicker patients than the PRHO routinely encountered in surgery.

PRHOs described *differences between professions,* predominantly differences between doctors and nurses. The description of nurse practice suggested that nurses were more cautious and would follow procedures and protocols. For example, the nurses would use critical incident forms and report needle-stick injuries, whereas, doctors would not.

PRHOs described *differences between consultants* and PRHOs. PRHOs described the consultant as more at 'risk' than themselves, being 'more' responsible and ultimately legally accountable. The PRHOs described variations in consultants in the way they approached the management of conditions and also whether they were 'nice' to the PRHO or not.

When describing the *differences between students and PRHO role,* PRHOs saw the learning they gained from medical school as being limited in teaching them how to do the job. It was the reality of the situation and the responsibility of the job that the PRHO

learned from. PRHOs recognised that they were more efficient and effective in aspects of patient care *now* than they were *then*. They had also learned from experience how long things such as a bleep call could be left before needing to respond.

The quotes held under the free node *Collective Knowledge* describe what PRHOs reported as everyone knowing about the problems with NHS resources, issues with the job and tiredness.

5.3.2.5 Ideal versus reality

PRHOs described how things ought to be and were not. This covered: following protocols, taking one's time, the wearing of gloves, the certainty of a diagnosis, doing practical procedures and doing complete and thorough examinations.

5.4 Key Findings from Phase One

5.4.1 The 'Reported Risk' analysis

Identifying the stated 'risks' was more difficult than the section on the 'reported risk' data indicates. The fundamental problem with this analysis was that in order to identify units or categories of 'risk', PRHOs needed to describe something with a shared interpretation that could be reduced to units for analysis. What the PRHOs described was something that was for them, complex, often individually interpreted and, to add further complexity, often not conceptualised until asked about in the interview. The PRHO stories described this, and the difficulties with categorisation demonstrated it. Problems with the analysis and what was gleaned about the term 'risk' are separated below for ease of understanding but were viewed as parts of the same issue.

5.4.1.1 Questioning the activity

Of the 32 PRHOs individually interviewed, 24 made comments in the initial few minutes of the interview about the task of 'listing the risks'.

Some PRHOs stated that they did not understand what they were being asked to do and others sought clarification on what it was they were to do and when. The PRHOs responses to being asked about 'risks' suggested that they experienced difficulty with the broadness of the term as it applied to clinical practice and that they had never

thought about the term 'risk' before.

> 'It's not something you think about all the time (J No?) You know, so when you actually have to think about it, its difficult to sort of separate what is actually, what do you mean by risk and what are my main concerns (A4:29-32)

PRHOs also described multiple ways in which the 'risks' of clinical practice could be interpreted and classified. PRHOs' suggestions for classifying 'risk' demonstrated no consensus amongst them on how 'risks' could be classified although there was a propensity to differentiate between 'risks' to themselves and to their patients.

> Eh, whether you wanted just a categorisation in broad terms or individual examples or whether you wanted risks to yourself or the patients or ... (C11:16-18)

Asking PRHOs to interpret the term 'risk' was challenging for them and illustrated that although a familiar term, it was one that had multiple interpretations and could be seen as pertaining to different groups within the health care setting, different working situations as well as indicating different degrees of 'risk'. The responses also indicated that PRHOs perceived that they could cause, as well as be the recipients of 'risks'. Examples of these are evident in the following descriptions of the Phase One data.

5.4.1.2 Problems with coding

PRHOs used different terms and labels to describe what appeared to be similar 'risks'. This resulted in me having to make decisions on 'best fit' when trying to group the 'risks' into categories. For example, as the categories were developed from the data, some 'risks' identified by PRHOs could have been placed under several headings. For example, PRHOs described the 'risk' of contracting sickness, diarrhoea and colds from patients. This could have been placed within the category 'Risks - From hospital work' but became part of 'Risks - From patients', sub-node - 'Infections'. The rationale for this decision was that these infections were not viewed as necessarily originating from the work per se but as a result of being in close proximity to people, specifically patients. Infections caused by needle-stick injury were placed under 'Risks - From procedures'.

Arguably the distinction between these categories was tenuous as being contaminated by patients occurred whilst conducting one's work in the hospital.

Other issues were more difficult to rationalise. PRHOs explicitly described 'risks' to their heath:

> 'risks to yourself personal – not directly due to patients but I think there's a slight risk to our own health we do have a poor diet, we do have poor sleep. (A8:74-76)

'Infection' was not placed under 'Health' as, in the sense that the PRHOs used the term, 'Health' denoted a broad general description of well-being. Some of the factors the PRHOs linked to changes in health were through self-neglect, fatigue, poor eating and sleeping patterns.

> 'Exhaustion. Well there's a risk to your health there isn't there'. (G23:113-114)

The previous quote suggests that exhaustion was a health issue for this PRHO. The next PRHO appeared to associate a similar 'risk' of 'working oneself into the ground' with psychological issues.

> 'Er there's obviously there's the risk that you might sort of work yourself into the ground, you know you might be sub-clinically depressed or depressed. Erm, definitely a risk of that.' (C11:104-106)

Can exhaustion and working oneself into the ground be considered the same? 'Fatigue' fitted into the 'overwork' category as an outcome (overwork caused fatigue) but fatigue was also related to health (fatigue caused problems with health and psychological and social well-being). To add to the complexity it was unclear from the above transcript of C11, whether 'working yourself into the ground' was viewed as a cause of depression or a result.

The above problems might have been resolved by repeated refinement of the tree

structure. This was not conducted as when these problems arose it was recognised that the analytical process undertaken was actually attempting to reduce the term 'risk' to mean 'a hazard' and this was unlikely to generate any meaningful conclusion. What was recognised from the analysis was that the PRHOs were describing 'risk' not only as a 'hazard' but also relating the term to the chance or probability of negative consequences.

> 'Or the risk of your patient dying and you being the only person who saw them, that worries me too.' (A7:119-120)

> 'And so you know you run the risk of getting into the nurses' bad books, but it's – on the other side is you've got sick patients you have to deal with, this is not urgent. So you just have to sort of em bite the bullet'. (C10:203-207)

Viewing 'risk' as the chance of negative consequences may explain why a PRHO might refute the applicability of this term when an outcome was inevitable.

> 'You knew that you were going to have to do – weekends, on-calls, nights, you know – that was part of the package – so it – I don't see that as a risk – it's an unfortunate consequence – which you knew about really (J Yeah, I understand.) I don't see it as a – you know – ooh no one told me about that – because – you knew, everybody knows, you sort of have to go through it.' (G25:131-137)

For this PRHO, 'risk' was defined as an unexpected adverse incident and 'more to do with uncertainty' (G25:122). Others also dismissed the term 'risk' for similar reasons.

> 'So I had not really had any time off for 19 days and then it would be just like – your life is working and sleeping – and you eat around that and I think that's harmful. I think that's not just a risk, I think that's probably not a risk actually. Perhaps it's just a reality of the job and what we do.' (A6:512-517)

'Risk' was not always an applicable term to describe negative aspects of the job if they

were inevitable. However, others did not make this distinction and labelled the same situation as a 'risk'. This may be due to some actively conceptualising the term, as A6 appears to be doing in the above quote, whilst others might have used the term without this cognitive engagement.

Attempting to develop a robust categorisation of the 'risks' of clinical practice was challenging when no one system of categorisation appeared to fit all the 'risks' the PRHOs identified. This was further complicated by the same 'risk' being used to denote a cause (a hazard / threat), but in other instances an outcome, or concerned with the probability of an adverse effect. Some PRHOs connected many issues under one 'risk', where others had labelled these issues as separate 'risks'. For these reasons, it was impossible to stipulate the number of PRHOs who cited a particular 'risk' as a 'risk'. The initial intention in this study was to check the robustness of the categorisation by the use of an independent assessor to assess inter-rater reliability. However, it became clear that the nature of what was being described by the PRHO would not be explained through a simple content analysis.

Experiencing these difficulties in categorising the listed 'risk' was an important turning point in the fieldwork as these findings suggested that the wrong analytical approach was being taken with the data. With hindsight it was recognised that the simplistic request to 'list the risks' on the data sheet should have merely generated 'hazards', but the PRHOs' responses suggested a much more complex perception of the 'risks' of clinical practice. These findings were supported by the free node '*Differentiating risk*', where there was no collective way in which the PRHOs described 'risk' in the interviews. There was however, a propensity when differentiating between those things that were and were not perceived as being a 'risk' to view it as meaning 'a potential for negative consequences'. As a result, for those people who described 'risk' in this way, those things that were expected or occurred routinely were not described as a 'risk'. Others stratified 'risk' in terms of consequences, level of danger, uncertainty and in terms of hazards.

The following sections reflect the other lessons learnt from the 'reported risk' analysis and further illustrate the complexity of how the PRHOs used the term 'risk'.

5.4.1.3 The relationship between 'risk' and practice

When a PRHO labelled something as a 'risk' in clinical practice it was not necessarily a 'risk' he viewed as relevant to himself.

> 'Well, yes, the other things are the risks to my health and stress, but I don't really think about those too much, I think certainly so far, I've not, I don't feel as though I've suffered with stress or – or harmed myself by my work.' (A4:54-57)

This suggested that some 'risks' were known and acknowledged as 'risks' of the pre-registration year (G26:146-153 talked about how stress was discussed as such in medical school) but not necessarily something that each PRHO experienced or would attribute to himself. This may partly explain why 'risks' were illustrated by stories about what had happened to 'others' rather than being drawn from personal experiences. For example, although violence and aggression from patients was reported as a 'risk', incidents described were predominantly from the experiences of friends, acquaintances or colleagues.

> I mean I had a friend where I last worked who was punched by a patient. She lost her teeth and so, things like that bother me. (A3:119-121)

> And that could, I mean, this happened to my house mate – she ended up in a closed room with a man who was carrying a knife (G23:59-60)

The first-hand accounts of 'violence' experienced by PRHOs were from elderly patients in confused states. The accounts of verbal aggression were drawn from personal experience, again involving confused patients.

5.4.1.4 Relationship between identified units

Throughout the data, the PRHOs described relationships between elements; 'risks' leading to other identified 'risks', or 'risks' having multiple consequences:

> 'Stress plus fatigue plus, I think it's probably all of those really. (J Right) Stress and fatigue, self-neglect, poor appetite, poor health and certainly in some

cases, people may become socially withdrawn and some of those things can lead to, you know, anxiety states, and depression and as a result that will affect your working ability.' (A1:4-9)

'I think one of the biggest risks is the possible consequences of making an error of judgement, whether that be either the medical legal consequences which we're relatively protected against in the pre-registration year because we're supposedly supervised through everything we do. Or you know, the sort of risks to your mental health of knowing you've killed someone accidentally you know, which is a big thing.' (I31:143-149)

PRHOs identified how several 'risks' could come together and the interplay with one another caused further problems:

'Well em it's about misjudgements em and also er when you're tired of course you're more likely to misjudge things so you can get a patient at risk and of course you're also yourself at risk from a legal point of view. Em but also I'm finding because – you're perhaps tending not to put or it's a greater effort to put in the amount of time on a patient that they really do need. You know if you're tired you tend to be – you do tend to think 'Maybe this blood can wait till tomorrow' or something like that and really it's when it gets to that stage and you're having to force yourself to do – to give the patient your best, then it's an easy tip over the edge to go the other way and think Oh I'll just leave it for now, and it's not doing the patient the best service.' (C9:116-127)

Although the PRHOs were likely to relate the term 'risk' to themselves rather than to patients, the interdependent nature of these was apparent.

5.4.1.5 Creating a balance

With so many 'risks' identified and with interplay between them, the PRHOs described differentiating between 'risks', and deciding which required action and which did not.

'It depends on how big the risk is, if it's a large risk you pass it on, it's not my

problem. If it's a small risk and you can think your way out and think what happened then and what do I do, and you ask people what they think you should do.' (E17:332-335)

'I suppose you can look at it in different ways, there are things that are the risk of you failing to complete the task, of whatever you're doing are high – and there are ones where the stakes are high (J Yeah) And there are – and p'raps I'll only be – there are things that I will do where maybe the stakes are quite high, but I'm confident that I can do it' (A6:169-174)

Taking action to reduce a 'risk' could be ignored if it impacted on getting the job done.

'Well I said on the form, ... about injury, I think I've noticed, things like my back is really sore in comparison to what it used to be, it's not a problem in that I'd seek help about it, but I'm really aware that I do have to move patients around a bit, and we had an induction about moving and handling, but it's completely impractical. Because it would take half an hour to move a patient into position, if you did it all properly and I know that I'm to blame, because I will just spend, I will just use my back you know badly, but I think that is a risk as well for what ever reason, so risks to your back'. (A3:78-87)

Needle-stick injuries were the singularly most commonly reported 'risk' in the Phase One data but comments suggested that PRHOs rarely reported these or implemented protocols for their management. The 'needle-stick injury' statements indicated a need to create a balance between the practicalities of 'being safe' whilst getting the job done as quickly and efficiently as possible. The PRHOs weighed up the 'risks'.

'I know that unless I was told that someone had say, hepatitis or HIV that I would not instinctively glove up to go and take blood, but that's - that's probably just because on my track record I've never acquired a needle-stick injury. I've acquired different types of injuries but not a needle-stick, so I think I'm quite confident in going up and doing that without being overtly cautious' (E20:29-35)

Although needle-sticks were a perceived 'risk' and came readily to mind when asked to 'list the risks', it was a 'risk' that in practice the PRHO reported as being one they very rarely thought about or questioned the need to follow protocols. They would reject 'safe' practice for speed. From the data there appeared no consensus in terms of how a PRHO would act apart from that they weighed up situations and could justify their behaviour according to the particular criteria that they believed to be relevant at that time.

These findings were supported by the free node *'cost to benefit ratio'* and *'ideal versus reality'*. It was also evident from this latter node that knowing what needed to be done, and wanting to do the 'right thing', did not necessary ensure it happened.

> 'Well there's things like internal exams and things like – where it's a bit risky if you haven't got a chaperone, which you don't always have a chaperone, because there's not always one available, so those are a risk in a different way aren't they?' (A4:246-249)

5.4.1.6 'Risks' to self

The conclusions drawn above were predominantly from the data categorised as 'risks to self' which was the largest category of 'risks' described by the PRHOs. These 'risks' were difficult to categorise because what were 'risks' for one PRHO were refuted by another. 'Risks to self' were sometimes acted upon, and others not. From this analysis, the term 'risk' came to be understood as existing within a continuum where some of the 'risks' the PRHO may engage with, or be concerned by, but not others. It was felt that where the PRHOs would place the 'risks to self' on this continuum was likely to vary between individuals.

The data describing the 'risks to patients' were less difficult to analyse. This may in part have been due to there being less data about patients or because the PRHOs gave unambiguous and specific examples of 'risks' as the following section demonstrates. This made it easier for me to differentiate between 'risk' as a cause and 'risk' as an effect.

5.4.1.7 'Risks' to patients

The 'risks' captured under this heading alluded to relationships between cited 'risks' as well as the culmination of factors leading to potentially significant effects on patient care. The relationship between factors was also described in the free node analysis: 'risks' perpetuating other 'risks' - from patient to PRHO and PRHO to patient.

To help facilitate the analysis of these relationships, the nodes were conceptualised diagrammatically (Figure 6).

Figure 6. Early diagram used to reconstruct nodes

<table>
<tr><th colspan="3">'Risks' arising from the PRHOs</th></tr>
<tr><td>From Omissions</td><td>From Making mistakes</td><td>From Working beyond their scope of practice</td></tr>
<tr><td colspan="2">(causes) Being tired</td><td></td></tr>
<tr><td colspan="2">Not knowing enough</td><td>Not actively seeking help</td></tr>
<tr><td colspan="2">Covering too much work – (Rushing)</td><td></td></tr>
<tr><td colspan="2">New to them</td><td></td></tr>
<tr><td colspan="3">← Not enough support →</td></tr>
</table>

The links illustrated in this diagram were evident in the PRHOs' descriptions but the content analysis of identifying 'the risks' had fragmented these relationships. Conceptualising the PRHOs' stories into diagrammatical representations of their accounts helped to identify the importance of seniors in reducing the 'risks' to patients through the action or inaction of the PRHO. These findings were supported by the free nodes captured under the heading *'Support systems'.*

5.4.2 The Free Node Analysis

The following gives an account of the key findings from the free nodes.

5.4.2.1 'Risks' as beneficial

Although the term 'risk' had negative connotations for the PRHOs, what emerged from the open coding was that some issues, situations or events identified as 'risks', also had benefits.

> '...if you protect yourself against all the risks you would never learn so in fact risks are probably quite important so you are exposing yourself to risk, not covering us up in cotton wool because if you do that then you'd never take blood or you'd never put a venflon in, you'd never give an injection or you never expose yourself to any risk and you never learn so it's not all bad is it?' (A5:455-461)

These data suggested that some of those 'risks' identified by PRHOs had recognisable positive effects and labelling something as a 'risk' may mean that from another perspective it was also functional or in some way beneficial. This quote suggests that for A5 challenging himself and dealing with 'risky' situations had an educational value.

5.4.2.2 The importance of compromise

The multitude of pressures and 'risks' the PRHOs faced in their practice necessitated compromise. For example, a situation may have inherent within it a number of 'risks' but the PRHOs needed to make decisions to minimise the potential for negative outcomes. This was evident when the PRHO was under pressure, with multiple tasks to perform and having to decide the quickest and most equitable way through these. The importance of compromise in the PRHOs' work suggested that PRHOs needed to weigh up the 'risks' and benefits of a particular action. This equated to a judgement call within a clinical setting.

5.4.2.3 The importance of being responsible

In all the decisions the PRHOs described making, it was important that they acted, and were seen to be acting, responsibly.

> 'That's sort – you know, that's the case as well as knowing how much you can do without supervision and being able to – though ultimately it's the consultants

responsibility if you're working in their team, they take responsibility for your actions. But I think sort of working towards the point as well where at each level you have to sort of stand back and say, "You can't do that procedure, you're not trained to do something, and you have to take more responsibility for yourself." And I think as House Officers it's probably quite difficult because a lot of people will feel pressurised into doing things.' (C16:122-131)

Although the PRHOs described having less responsibility than other grades, the sense of responsibility to their team, consultant, and also the patient, again acted as a control on what actions the PRHO would, and would not, take.

5.4.2.4 Support from a senior

Managing decisions and making the right compromises were crucial for the PRHO, but limited experience meant that they did not always know what to do or when. Again, what was evident from these data was that support from the seniors was integral to the PRHO working safely as a clinician. Engaging the help of someone with more experience than himself compensated for the PRHO's lack of knowledge until sufficient experience had been gained.

'...we have been told that whenever we are unsure, then ask the SHOs and I think erm, during the first 2 weeks that was definitely something I did very often. I did my first week of nights very early on and I was calling the SHO quite often, now I've just finished a week of nights and it was much less often. But if I ever do hesitate I will ring up the SHO.' (A8:111-120)

Knowing when one had had 'sufficient experience' was not always easy.

'You do sometimes think Oh I shouldn't be doing this I haven't been doing it long enough to do it, confident and competent to do it on my own and making management decisions about patients that, you know, you are not entirely sure whether it is right or wrong but it probably wouldn't do any harm and they look quite sick and probably you should do something.' (G27:212-217)

To add to this complexity, it was not always feasible or acceptable to engage a senior in all instances where the PRHO felt unsure. As a consequence, the PRHO needed to learn when it was appropriate to call for help and advice.

> 'I also know em now about who to contact and when if I have a problem. Certainly initially you again because due to inexperience there's some times when you em within the first months or so when you think When do I need to contact an SHO. If you contact them every five minutes for every time you take blood you know it just doesn't work, it's irritating. Similarly if you don't contact your superior often enough that again causes a risk – it's knowing when and yea, I mean at the moment I feel quite confident that I know when to contact my superiors but that's something that you gain after a little while.'(C9: 150-159)

Without senior input the PRHO could not always function safely. The engagement of seniors allowed the PRHOs to gain from experiencing real challenges in clinical practice whilst reducing the 'risks' to the patients from ill-informed action. The PRHOs recognised that they could not work without the co-operation of their seniors and therefore knowing when it was appropriate / not appropriate to contact them and gain advice or help was essential in maintaining good working relationships.

5.4.2.5 'Risk to self' versus 'risk to patient'

Although there were benefits to having one's work monitored by seniors, there were also costs. These were not only concerns about obtaining good references but about how one would be regarded as a doctor by senior clinicians.

> 'I've made a couple of mistakes and felt really bad, you feel bad that it's happened to the patient and this poor person has gone through something because of your own like mistake – and then you think – a few days later you think, I bet everyone thinks I'm stupid as well. (laughs) And it is always a risk to your own confidence I guess and what you perceive of what other people think of you.' (E22:543-549)

Although there was a potential 'risk to self' from making unacceptable demands on

colleagues, the PRHO's 'risks to self' were stated as inconsequential against any significant 'risks to the patient'.

> 'And you've just got to just – if that's the risk you've got to take – you'd much rather look an idiot – get the senior in – and be told you're an idiot – and the patient gets a good seeing to, rather than risk it and risk it and risk it. And call at the 11th hour and the guy says I wish you'd called me earlier.' (G25:697-701)

Perhaps ultimately, the 'risk to the patient' was actually a 'risk' to oneself.

> 'I think the bottom line is – the bottom line risk in this job is harming patients because that is the way the sort of yardstick by which you're measured – the outcome measure that's important issue and the quality of their care and the end result of their care.' (A6:644-648)

It was felt that the PRHO was balancing the needs of the patients whilst being aware of the acceptable and unacceptable consequences to himself.

5.4.2.6 Differences

The PRHOs described many differences between people, professions, hospitals, their role as a student and PRHOs. They also described differences between working in medicine and working in surgery. These were concerned with the functionality of the seniors in supporting the PRHO. The patient conditions were, of course, also different although it appeared that the type of work the PRHO did was the same, no matter if they were in medicine or surgery. It was the accessibility of seniors that differed

5.5 The way forward for Phase Two

5.5.1 The process

Phase One was conducted to collect from PRHOs the perceived 'risks' of clinical practice so that a situation could be established and used to focus Phase Two. This particular analysis was done through singling out those things that the PRHO labelled as 'risks'.

The analytical approach initially adopted, when identifying the 'reported risks', assumed 'risk' had stable, identifiable elements and could be adequately captured or described by lists. Some could, but what the PRHOs were also describing were constructs which focused on the inter-relationships between items of 'risk' rather than the items of 'risk' themselves. The 'reported risk' analysis was difficult, as it attempted to isolate items which were often inter-dependent. 'The 'free node' analysis captured these relationships and allowed for a better understanding of 'risk' as a complex, multi-factorial and interconnected entity.

The production of diagrams was found to be very helpful in reconfiguring data that had been fragmented by the 'reported risk' analysis. By producing these diagrams inter-relationships were uncovered. I also appreciated that I was actively conceptualising and making sense of the PRHOs' comments. I was constructing sense from the PRHOs' multiple descriptions of 'risk'.

5.5.2 The findings

The analyses generated findings that have important implications for a study wishing to focus on what was meaningful for PRHOs. Some of those things labelled as 'risks' by PRHOs had little every-day clinical significance. Labelling something as a 'risk' did not mean that it would be thought about in practice. Also variations between individuals meant that some 'risks' may be thought about by some PRHOs but not by others. Context also appeared important, with items only becoming 'risks' within particular situations, or when multiple factors were present.

These findings had a significant impact on the way that 'risk' was conceptualised by me. By the end of Phase One, 'risk' was no longer thought of as a situation which, once an 'appropriate one' had been identified, could be used in Phase Two. If 'risk' was only a 'risk' in particular contexts, when particular elements came together and might only be viewed as 'risky' by some individuals, labelling anything as a 'risk' would not make it applicable to all PRHOs. What was needed for Phase Two, was to capture the PRHOs' interpretations and understanding of the inter-relationships between 'risks', where potential hazards and threats came together and interacted. Phase Two needed to reflect a situation that posed for the PRHO the potential for multiple 'risks' (hazards,

threats, uncertainties and probabilities) to be present and explore with them what influenced their responses.

The free node analysis indicated what influenced the PRHOs' actions and engagement with situations. The PRHOs' clinical work, as they described it, was characterised by balancing multiple factors for the optimum outcome both in terms of patient care and for getting the job done. The PRHOs described monitoring their own behaviour knowing there were consequences and repercussions for the patient and for himself from not abiding by these practices. The PRHOs knew what was expected of them in terms of safe practice whilst engaging in work that was unfamiliar, new or that they were uncertain about.

Both analyses indicated a number of clinical situations that the PRHOs identified as requiring judgement in order to weigh-up the 'risks'. There were 'risks' around drug treatments and practical procedures but ultimately the decision to administer drugs or perform procedures was more likely to be taken by a more senior member of the team than the PRHO. The judgements that were the PRHOs to make were bound up in maintaining their responsibilities (however limited) as a doctor at that grade. The data suggested that PRHOs' judgements were about knowing their limits and whether they had enough experience to undertake an activity or task, whether they ought to continue with an action, whether they were informed enough to make a judgement and whether they were in a fit state to make these judgements.

The PRHOs were expected, if their internal monitoring recognised that they were lacking in any of the above, to seek input from someone more senior. The judgement of asking for help and advice had relevance to all PRHOs and it appeared to be the primary mechanism for reducing the 'risks' to patient from the PRHO. It was also a situation that appeared to require the need for balancing multiple factors. Deciding to engage the help of a senior necessitated that the PRHO recognised that a situation could, for a number of reasons, be problematic or 'risky' but that it was not always practical or necessary to immediately engage a senior's help in every situation or for every case. The PRHO had to make judgements about whether it was appropriate. Deciding that he needed help or advice required the PRHO to weigh up the 'risks' and

what were the acceptable compromises to make.

Other potential situations which were considered for Phase Two were the factors that PRHOs used to weigh up the likelihood of contracting HIV from patients or whether it was necessary to gain supervision for a procedure. The first of these was rejected as it appeared from the data collected from Phase One that this was a simple calculation that could be made by simply looking at the notes. The second was thought to be useful but, as there were limited procedures that were undertaken by the PRHOs, this was also disregarded.

Therefore, gaining help and advice appeared to require situational understanding as to when it was relevant, important and appropriate to do so. This one act also appeared to cause, as well as reduce, the 'risks' PRHOs described and was thought to encompass 'the risks to self' as well as 'the risks to the patient'. These suppositions were supported in subsequent phases of the study.

It was apparent that if the study was to describe the pre-registration year accurately, it would need to continue in Phase Two to engage with both the medical and surgical jobs and a variety of hospitals.

5.6 Final comments

Not only did Phase One identify the focus for Phase Two and the sampling strategy needed to give a complete account of the pre-registration year, this phase also illustrated important differences between these two types of analysis. The 'reported risk' analysis identified the hazards but the free node analysis gave me an understanding of how 'risk' was actually used by PRHOs and how it related to their clinical practice. The 'free node' analysis captured the complexity of clinical practice. The conceptual diagrams helped in capturing these complexities. These insights and understandings of the phenomenon had a significant impact on subsequent phases and in appreciating the importance of constructionism to this enquiry.

Chapter Six - Contacting a senior - the risk judgement call

6.0 Introduction

From the analysis of the Phase One data, asking for help and advice from a senior was identified as a process that had the potential to encompass many of the reported risks of the pre-registration year. In Phase Two the PRHOs were asked to talk about the process of engaging a senior and what influenced their responses to making this particular judgement call within a clinical setting. The following chapter describes the analysis of the data from the Phase Two interviews. The analysis was also informed by Phase Three activities.

6.1 Phase Two - data analysis and presentation

The analysis began by sorting and labelling the Phase Two data by content and placing these into free nodes. This process generated twenty-three free nodes (see Figure 7, first column). These free nodes captured issues emerging from the data transcripts as well as the questions asked of the PRHOs.

The contents held under each free node were then subdivided and sorted. This was achieved by writing summary accounts of the contents, resorting and then, where appropriate, devising diagrams which gave schematic representations of the node. Summary comments were made about each node and included descriptions of what the data appeared to indicate. An example of the analytical procedure is given in Appendix I and diagrams from Phase Two presented in Appendix J.

The above process indicated that some of the free nodes could be grouped together (see Figure 7, second column) and identified the organisational structures within which the PRHO worked. Under the new headings, the data were re-sorted and new diagrams generated. Further re-sorting of the data generated further diagrams and interpretations of the data. These processes were continued until an encapsulating diagram was created (Figure 10). This final diagram represents the substantive theory of this study.

The findings presented in this chapter describe the framework or system within which

these doctors worked and trained, the processes the PRHOs were expected to follow in asking for advice and help, and the factors that informed PRHO judgement when asking for senior intervention. The data from the interviews are presented here to firstly describe the PRHOs' explanations of practice and then to explain from where the substantive theory arose through my interpretation of these data. What is presented in this chapter is summarised in column three of Figure 7: descriptions of the data (6.2), followed by its interpretation and the emerging theoretical coding (6.3). The discussion chapter (Chapter Seven) will describe the substantive theory generated from the findings presented in this chapter.

The term 'team' will be used throughout in preference to the term 'firm' when referring to the group of doctors with whom the PRHO worked and to whom he was responsible. This has been done because the term 'team' was preferred by the PRHOs.

As with the previous chapter comments reflect typical statements made by PRHOs unless otherwise stated.

6.1.1 Phase Two Sample

From the twenty-two PRHOs approached, twenty-one took part in the interviews. There were twelve males (57.1%) and nine females (42.9%). The uneven number of males to females resulted from one female declining to take part in the interview and another site having only males in medicine. Twelve of the PRHOs interviewed trained in Newcastle (57.1%), four in other UK medical students (19%), and four in medical schools overseas (19%). One PRHO did not complete this section of the form.

The majority of the PRHOs interviewed were in their second house job (18 / 85.7%) while two stated that they were in their first house job (9.5%). Another PRHO stated he was in his third house job as his rotation included three different posts. Ten PRHOs were in medicine (47.6%) and eleven (52.4%) were in surgery.

The sites included in this phase were one large teaching hospital, a large general hospital, a medium sized hospital and a small district hospital.

Figure 7. The development of categories from the Phase Two data

Column one - Free nodes generated from Phase Two data	Column two - Groupings of the free nodes	Column three – Development of theory
F1 Examples – Complete accounts of stories where the PRHO called a senior **F2 Signs** – The signs and symptoms picked up by PRHOs and used to decide whether to call for help **F3 Reasons for calling** – What the PRHO was hoping to gain from senior input **F4 Rules** – The rules the PRHO follow. These were stated not as personal rules but facts **F5 Outcomes** – The outcome of the intervention **F6 Division of Labour** – What the PRHOs do, what the senior does **F7 Gained from seniors** – What the seniors brought or bring to a situation **F8 Mechanisms used** – Mechanisms used to call for help **F9 Criteria for decisions** – Criteria used for deciding when to call for help and advice and on what judgements decisions were made **F10 Different contexts** – How different contexts change 'calling for help' **F11 Borderline cases** – Cases when the PRHO had more difficulty deciding whether to call for help or not **F12 Change over time** – How the house officers' development over time influenced what they call for help about **F13 Comparing self with others** – The PRHO comparing themselves to other PHROs	**The underlying structure** - How medicine functions and what the structures are F6 Structures within the division of labour (*previously* Divisions of labour) F23 Working as a team F12 What has been learned (*previously* Changes of time) **The process of instigation senior support** – the process of calling for help and advice F3 Reasons for calling + F9a Criteria for decisions F7 Gaining from seniors F8 Mechanisms used to call for help and advice from seniors, nurses and peers (*previously* Mechanisms used) F4 Rules F19 Rules that underpin which grade to call (*previously* Who did you call) **Variations in process** F10 Different contexts – day and night, medicine and surgery F13 Comparing self with others **Judgements** F2 Differentiating signs and symptoms (*previously* Signs) F3 Reasons for calling F9 Criteria for decisions F18 - Tacit knowledge **Skills ??** F16 Self-awareness F13 Comparing self with	***Description*** **The underlying system** How medical work is structured How training works **Instigating senior support** Reasons and functions How it is done **Making judgements** Discerning between - When to call What is needed Cues used / knowledge needed: From patients – requires PRHO to recognise 'illness' From PRHO – requires PRHO to know limitations Additional factors – seniors, time etc ***Interpretation*** For **model** system PRHO required to: *Act responsibly* *Progress and develop* To do this they must be able to: *Balance (competing demands)* *Be discerning* Implicit expectations underpinning model: *When recognising 'need' PRHO will contact senior* *Senior will come if called* *Senior brings more knowledge to situation*

F14 Potential problems and solutions – PRHO is asked or refers to things that could be viewed as problems in calling for help and advice and how they managed them

F15 Practical procedures – PRHO talking about asking for help etc. with practical procedures

F16 Self awareness – PRHO talking about 'self-awareness' and knowing his own abilities

F17 Important factors – Things that the PRHO identified as important

F18 Tacit knowledge – PRHO described just knowing about things

F19 Who did you call – Examples of who the PRHO called and for what

F20 Should have called earlier – PRHO was asked about situations where they wished they had called for help earlier

F21 Called too early – PRHOs talked about situations where they thought they had called for help too early

F22 Knowing sickness – PRHO describing how they know a patient is really sick

F23 Working as a team – PRHO talked about the team (clinical or ward)

others
F22 Knowing sickness

Judgements in action
F11 Borderline cases
F20 Should have called earlier
F21 Called too early
F15 Calling for help for practical procedures

Fall into more than one heading!
F1 –examples
F5 Outcomes
F14 Potential problems and solutions
F17 Important factors

PRHO has right level of confidence

Real world – above not always happening. Why?

'System' revisited – consequences identified:

- *Being judgemental and being judged*
- *Difficult: to challenge seniors/betters; to work out of the team: to work with non-doctors*

'Engaging a senior' revisited - *multiple potential consequences to patient, self and team from engaging/not engaging a senior*

PRHOs need to be **discerning**, weigh things up and **create a balance** between competing demands and consequences

= Theoretical coding

Upholding the tenets
Tenets underpinning the system:
'Act responsibly'
'Progress and develop'

Balancing consequences
To patient To self To team

Being discerning

Uses context specific **Knowledge**

6.2 Describing the data

6.2.1 The underlying system

Drawn from the *F6 -Division of labour, F23 – Working in a Team, F12 - Changes over time, F14 - Potential problems and solutions.*

6.2.1.1 Description of the system

The PRHOs gave accounts of how training and work was organised.

6.2.1.1.1 The structure of working

The PRHOs described working within teams that were made up of different training grades of doctor. Although the term 'team' was used by the PRHOs, the system described did not reflect equality between members but juniors working for, and being subordinate to a more senior colleague. Each doctor was ultimately accountable to a consultant but in practice each doctor was accountable to the consultant's representative on the ward, the more senior doctor. On the ward the PRHO had, as his immediate senior, the SHO. The SHO had, as his most immediate senior, the SpR, who had, as his senior, the consultant.

These grades of doctor not only described the stages of training for doctors but also how patient care was organised and delivered; decisions were made by more senior doctors and passed down to more junior doctors.

> 'Shit goes down, decisions go up.' (D18:438)

The team approach to patient care by doctors continued 'out of hours' (weekends, bank-holidays, nights) but in these instances it was made up of doctors from around the hospital but still included the different training grades. The duties of these teams were predominantly to deal with emergencies and to maintain patient care until the patient's own team returned to actively manage the patient's condition 'during hours'.

The doctor's grade gave an indication of what his role should be but did not define what he

would do. As the PRHOs described it, there was flexibility in what work the more senior doctors undertook as he may need to compensate for any skill deficiencies on the part of a more junior doctor. As the PRHO was the least experienced, he would do what he could and the more senior doctors would deal with the rest.

The typical duties for the PRHO were described as performing the routine (basic) investigations such as taking a history, examining the patient, writing up notes and initiating the short term measures of patient care. The PRHO, as the most junior member of the team, had comparatively little responsibility for patients and because of his pre-registration status, had restrictions placed on his practice. For example, a PRHO would not be allowed to administer certain medication, prescribe 'take-home' drugs or transfer patients to other departments. In cases considered beyond the remit of the pre-registration grade or of that particular PRHO, he would be expected to contact a senior.

6.2.1.1.2 Training within a system of patient care

The PRHO started the pre-registration year having had exposure to ward work but because he was unqualified, everything he did was redone by a doctor. As a consequence he did not experience any real sense of responsibility for patient care until the beginning of the pre-registration year. Although there was a sense of being responsible for patients, the PRHO's accountability for patient care remained limited.

> '... the responsibility of care is not on your shoulders and yet you're looking after the patient, so you're learning all the time about the worry of, you know, being the man making the decisions.' (A5:428-31)

The PRHOs described initially having to go frequently to seniors because there were gaps in their knowledge and skills.

> 'On your first day, first job you call about everything, and then as things progress you get to know who can wait or who you're happy to deal with and who really

needs some attention now.' (A2:188-91)

The seniors taught them so that, when later faced with a similar problem, the PRHO potentially would know what action to take. The interaction with the senior also acted as a form of feedback. When the PRHO had performed a task or activity, and then gained senior input, he then knew whether he had acted appropriately or not by the senior's approval or disapproval. This feedback may lead to the PRHO modifying his behaviour.

> '... what would happen is you'd phone them and they would say 'Well have you got the bloods yet, have you got the X-ray yet, have you done that?', and you'd say 'No', and they'd say 'Well do that and then phone me back'. And that was how you learned because it got so that you didn't phone – you did all those things and then you phoned the SHO. And I think that's reasonable and that's just how you sort of gradually get more independence.' (D19:52-9).

The PRHOs also learned from their experiences.

> 'Yea, definitely you pick up things – you pick up tips that you don't learn out of a text book and, you know – drugs to give or little techniques to try on things that you're not really going to learn from a text book. You're only going to learn if you get in there and do it.' (A3:195-9)

As the PRHOs became more experienced and attuned to clinical signs and their meaning, they became more discerning, differentiating patients and prioritising who needed their attention. They also became discerning with regard to nurse referrals and of nurses.

> 'I remember when I first started the job I was very much aware that the nurses knew a lot more and we often listened to them. Maybe more than I should have done and I was always aghast that all the SHOs would just say 'Oh it's just the nurses being annoying' and you know ringing you for rubbish and I used to think

> 'Well ...'. But now I realise that there are ... certain incidents where you are rung for absolute rubbish all the time and it's very annoying. But there are on the other hand other nurses who you get to know are extremely experienced ... I think you can – not rely on them – but you know you can – they can just – you know – you can bounce stuff off them. And I think that's perfectly acceptable.' (A7:350-61)

By the end of the pre-registration year seniors were contacted predominantly to fulfil the PRHOs' obligations to keep their seniors informed, to confirm action and to ask for assistance in complex and/or unusual cases.

> 'Obviously it changes throughout the year. For the first couple of weeks you need to call for help all the time, and everyone - when you first come out of Medical School that - they need to be around all the time. But now, I mean, people are a lot more happy to leave me to see – say, for example I'm on call today to see the emergency admissions, and they know that if I'm worried about them that I will ring them, but if I'm not worried about them they can wait until six o'clock and see them on the post-take ward round.' (D17:15-22).

The PRHO moved from being very dependent upon his senior towards more independent practice and ready to take on his next role as senior house officer with responsibility for his own PRHO.

The following points summarise the organisational structure under which PRHOs worked and trained:

- The PRHO was the junior member of a team of doctors. Although he may work alone on a ward, he did not work independently but within these teams
- Each doctor was accountable to a more senior doctor, with the consultant having ultimate responsibility for patient care
- The PRHO was expected to work within the limits of his own ability and those placed

upon his practice, and contact a senior for help and advice if needed

- Whilst delivering a service to patients the PRHO was also trained; developing his knowledge and skills in preparation for taking more responsibility for patients as a SHO

6.2.2 The process of instigating senior support

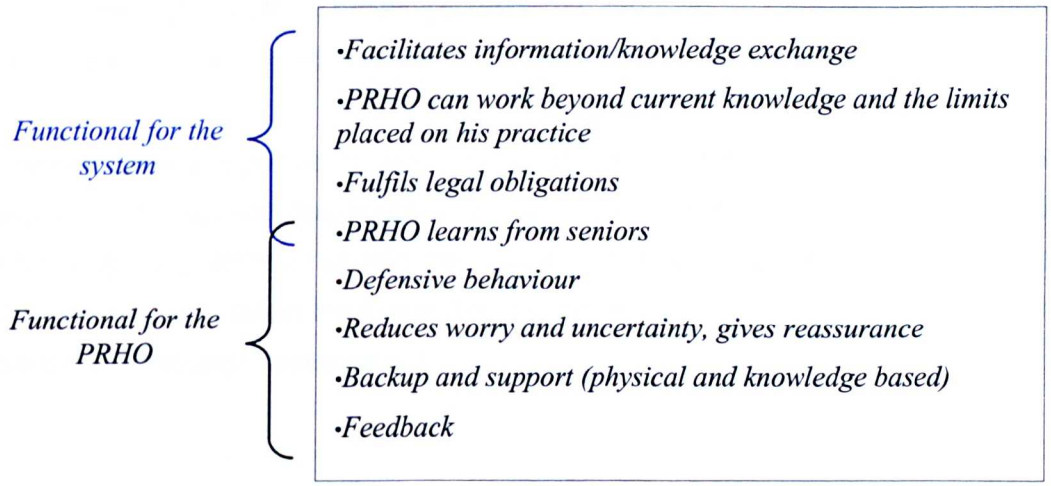
Drawn from: F3 reasons for calling for advice and help (+F9a criteria for decisions), F8 the mechanisms used to call for advice and help, F7 what was gained from the seniors, F4 the rules and F19 rules governing who you call, F10 different contexts, F13 comparing self with others (+F14 potential problems and solutions)

The PRHOs described the process for instigating senior support.

6.2.2.1 Reasons for contacting a senior

The PRHOs described contacting seniors for a variety of reasons that went beyond just fulfilling their legal obligation to keep seniors informed (Figure 8). These were grouped into those reasons that could be described as 'functional for the system' or 'functional for the PRHO'. The reasons for contacting a senior are as described below.

Figure 8 - The gains from contacting a senior



6.2.2.1.1 Functional for the system

The PRHO contacted their senior because by doing so it facilitated information exchange between them and ensured that each was acting from an informed stance.

> '(J Why do you do that?) Em, just so that they're aware – so that if I was then called back and they were getting worse on the treatment that I'd started I wouldn't be phoning the Senior fresh and saying I've done this, and they might say Well why did you do that. You know, so – just I often phone them and say I'm not expecting you to come and see the patient – I'm quite happy with what I've done, but just to let you know I've done this, this and this. And they might say Mm, how about ... or they'll say Fine. Mostly I think they'd say (?) Fine, but then at least if something worse happens later in the evening, then you can phone them up and say Do you remember the lady I phoned you about earlier? Well they've got a bit worse and I'd like you to come and see them now.' (A2:139-51)

By contacting a senior, the PRHO may then be allowed to operationalise a task once a senior had instigated or ratified a decision.

Contact within teams allowed seniors to teach juniors and the juniors to learn from their seniors. The senior's input to their junior's plans brought additional knowledge and skill to patient care. Undoubtedly patients gained from experienced clinicians being involved and perhaps everyone gained from the team working more efficiently and with support.

The seniors suggested alternative courses of action or described what the juniors should expect / not expect with pathologies or gave explanations about clinical manifestations. From engaging with their seniors the juniors gained knowledge that they could potentially apply to similar cases in the future. This helped the juniors progress and develop and to become increasingly independent.

6.2.2.1.2 Functional for the PRHO

PRHOs not only viewed the action of contacting a senior as a legal obligation but as a means of protecting themselves. The PRHOs described acting defensively by ensuring that they were seen to be fulfilling their duty and responsibilities.

> '...sometimes you just have to say 'Look, you know, I've done this, this and this, they're really not very well. I really think you should come and see them'. (J Yea. That makes perfect sense.) And then, you see, like, I mean and you document all of that and if they don't come and see them, you can safely say 'Well I've asked them to come ...', you know, and usually – most of them do come, it's just if they don't, you're not responsible.' (B14:535-44)

For the PRHOs, the action of contact may bring physical backup and support but also reassurance, reduction of uncertainty and worry.

> 'So if I think about it and think 'Yeah,...'or I think about and think 'Oh I shouldn't really, you know I don't really have to bother them.' And then I think 'Mmm' then I probably will just to settle my own peace of mind, just check that things are going alright, and if they say 'Well that's the usual reaction to that drug ...' or 'Yea, we'd usually expect that round about this time, don't worry about it' – then I'm fine. I've learnt something else as well. But so I usually try and get on the cautious side but at the same time, they're not too worried if you chat to them as long as you've done the simple things first.' (A1:235-44)

Interestingly, the educational input was never stated by the PRHOs as the reason for contacting a senior. It appeared, from their perspective, to be just a fortunate consequence of it.

Engagement with the senior potentially led to refinement and altered behaviour or confirmation of the appropriateness of the PRHO's action. PRHOs gained feedback on

their ability from the senior's reaction to their decisions, actions or proposed plans.

> 'This lady I knew that she needed to – we needed to get that kidney unblocked with a nephroscopy tube probably, which is what actually happened, so that was good. But it's also nice to speak to your seniors 'cos then they say 'They need a nephroscopy tube' and you say 'Ah – that's what I said' I can actually do this job, that's encouraging.' (D20:95-100)

The data suggested that the PRHOs needed, and also valued, the input from their seniors because they had regularly found themselves in situations beyond their capabilities and/or out of their job remit. The seniors were asked to examine the PRHO's work for accuracy or correctness, verify decisions and to bring additional knowledge, skills, or alternative approaches to the PRHO's work. Whilst the PRHOs got reassurance or peace of mind by checking with or having their actions confirmed as appropriate by a senior, the PRHOs were also covering themselves legally whilst the senior became or remained informed. As a consequence, the reasons the PRHOs gave for contacting a senior were often multi-factorial.

6.2.2.2 Ways of engaging a senior

If, for whatever reason, the PRHO felt that a senior needed to be contacted, his options were either formal or informal contact with his senior.

Formal contact, as the term implies, followed the line of command within the team. The PRHOs were expected to contact the SHO and if the SHO was not available, the SpR.

> 'You'd never – I'd never go straight to the Reg' if there was an SHO around at all' (A7:468-69)

By skipping to the next grade it appeared that the PRHO violated some convention. This may be a rule of etiquette or just functional (the SpR having limited time to spend with the

PRHO) or perhaps both. It may also be disrespectful to the SHO.

> 'I think if I was an SHO I'd be quite unhappy about a House Officer who's jumping over me all the time really, sort of going up to the Registrar, and I don't see there's any particular need for that. I think SHOs are experienced and got more experience than you and more ideas than you. Most of them are very approachable. And em I think it's better that you do go *(to your)* SHO, and then again if the SHO doesn't know and you don't know, then yea go up to Registrar then.' (A6:179-86)

Informal contact with a senior referred to speaking to whichever senior happened to be there or was just walking past.

> 'Cos I think – yea – Medicine has its official lines but it's sort of lenient in the way that if you catch them in the corridor, and you say Oh by the way I've got a quick question I need, do you mind? Of course he doesn't mind. And – they like that as well, it just shows initiative on your part as opposed to just sitting back and worrying about the problem. At least you're looking for help then getting it ...' (A5:51-57)

For informal advice and help, the PRHO may feel he must make reasonable and quick requests to the seniors.

> '....if they're sat next to me and I'm just wanting a bit of advice,...I think if someone is there it is pointless bleeping your SHO, and there's one sat there and it's just a one line question.' (A3:236-41)

Perhaps there was an appreciation that this was not part of the formal duties of that particular senior. It relied on their goodwill in that seniors had their own work to perform.

Informal chatting also occurred and was a means by which PRHOs learned from others' experiences, especially peers, and talked through problems.

> 'And your colleagues as well because there are times when some House Officers have seen things that I haven't seen and you know, you can discuss things with them. (J So it's usually quite informal, that sort of thing?) Yeah.(laughter) Over breakfast or something. But you often pick things up from those kind of discussions as well.' (A3:432-40)

The PRHOs described differences in contacting a senior, depending on whether it was day or night, working in medicine or surgery, from hospital to hospital and from senior to senior.

With easy access to advice, support and help through the day, the PRHO could engage seniors in discussions which helped him develop his understanding, confirm, clarify and test his decisions. At night, with less people about, the work-load was greater and consequently there was less time for discussion and meeting up with seniors. Engagement with a senior was more likely to be confined to the functionality of the job.

> 'It's the kind of person (*patient*) that if the Registrar's there during the day you might say 'I'll pop my head in the door and say hello to them' but you're not worried about them and you know – ..... So unless they got another chest pain in the middle of the night again there's no point in having them seen because nothing's going to be done for them urgently through the night, so there's no point in getting anybody to see them... ' (D19:215-24)

Getting senior support in surgery at any time was potentially much more complex for the PRHO than in medicine because seniors were in a different locale from the PRHO. When contact was achieved, the surgical seniors may not be able to help if the patient required medical care and may explain why PRHOs might describe feeling more vulnerable and

less supported in surgery than in medicine.

> 'In Surgery it's a bit more difficult because they're in theatre all the time and you feel like you're on your own. You really feel like you're on your own. In Surgery I thought we were unappreciated and it was very difficult to ask for help. Unless it was a surgical problem they wouldn't deal with it. They didn't deal with any Medical problems, they didn't do things like shortness of breath, nothing, chest pains, nothing, they couldn't deal with anything Medical.' (D16:306-10)

A fuller account of these differences is given in Appendix L.

6.2.2.3 Summary comments

Gaining senior intervention appeared to support the organisational structure for both working and training:

- Seniors were used by PRHOs for: checking (examine for accuracy and correctness), seeking clarification (looking for explanation or further insight) or gaining confirmation (corroboration or verification) from their senior. The PRHOs could also gain practical and some forms of emotional support from their seniors as well as fulfilling their legal and moral responsibilities to their patients through the act of contacting a senior. Senior input gave these PRHOs continual feedback on what was, and was not, acceptable and whether their proposed actions and those that had been executed, were appropriate or not.
- The PRHOs reported contacting their seniors for every decision at the beginning of the year and from these encounters began to develop a sense of when it was appropriate / inappropriate, necessary / not necessary to contact them.

6.2.3 Making Judgements

Drawn from: F2 differentiating signs and symptoms, F3 reasons for calling for help and advice, F9 criteria for decisions, F18 tacit knowledge and F13 comparing self with others,

F15 calling for help for practical procedures, F22 knowing sickness, F16 self-awareness, F5 outcomes, F1 examples

Although the PRHOs described actions that needed to be carried out and rules that they needed to follow, they also described making judgements about when it was appropriate to act in particular ways and to adopt the rules and conventions.

6.2.3.1 When to call

The PRHO had to be able to differentiate between patients sufficiently well to inform his actions. If called by a nurse, the PRHO would get some explanation about why he was needed. From the nurse's story, the PRHO could work out whether he needed to see this patient immediately or if it was a situation that could wait.

When the PRHO came to see the patient, he needed to assess how sick the patient was, whether this needed his attention immediately or could wait and whether he could and/or should manage the case alone. Contact with a senior was therefore necessarily initiated at the PRHO's discretion.

> 'Because an SHO will never say to you 'Ah you could have coped with that by yourself', because they don't know you as well as you do even, and em they often – there's a big range of skills between, you know as I said, when you first come out of Medical School, and now we're ending the year. There's a huge range – even when you're a month into your job, your first job, some people kind of picked everything up very easily and some people don't. So they can never say 'Ah you could have dealt with that' because that would really, could really upset someone, and they'd think 'Oh well actually I could have', you know, and feel really sheepish about it. So SHOs just never say that.' (D17:317-27)

The decisions about how sick the patient was, whether they needed immediate attention and whether the PRHO could manage, were facilitated by conducting an initial

examination and assessment of the patient which informed and allowed these judgements to be made. The acts of examination and assessment also allowed the PRHO to gain the prerequisite information a senior may ask for, so that they, in turn, could make judgements about the patient's condition from the PRHO's story.

Although the PRHO was making important decisions about the engagement of a senior, there was evidence of powerful motivators and incentives that ensured that the PRHOs kept seniors informed, ensured that their work was reviewed and stayed within their limits of practice. The threat of seniors checking things and knowing that they would be chastised or challenged when rules or protocols were not followed ensured, along with upholding patient welfare, that PRHOs followed rules and conventions.

> 'Well if he comes round the next day and the Consultant said you know 'How's everything been on the ward?' or you have a word to the team and they say 'Did your Senior review?' and you said 'No', you know, you need to have discussed it with a Senior so they can see they are right, people have been spoken to.' (A1:58-62)

The PRHOs made judgements on when to call, based on information from others, specifically nurses, and their own assessment and examination of patients. Ultimately these judgements led a PRHO to the decision that he was able to manage the situation without contacting a senior; that he felt that he knew what to do and that no potential problems were expected from that situation. The PRHO may decide to inform the senior later if he perceived that there was no imminent threat to patient well-being by not contacting him. If the PRHO had either some level of concern about his patient or his own ability to manage the situation, he would contact a senior. PRHOs often referred to these instances as being 'happy' or 'not happy' with a patient or situation.

6.2.3.2 Differentiating between what was needed from a senior

The PRHOs differentiated between situations, specifically on what type of intervention they

wanted or needed from a senior.

An *urgent call for **help*** may be initiated by a PRHO when he recognised that delaying senior intervention would make a difference to the patient outcome. This encompassed patients who were considered to be acutely ill or deteriorating by the PRHO and input from the senior could help the PRHO manage these.

> 'If the patient is very ill and going to arrest or die within hours, then get help straight away. (J Then why – this sounds like a simple question – but why is it you ask for help in a situation like that?) Because I know that I can't – I've done as much as I can and I can't do any more and I need someone else to say 'Do this. Do this'. So that's when I call for help. If the patient is, as I said previously, stable but something's not quite right that can wait, no real urgency, but the absolute pinnacle, as it were for calling for help is the health of the patient, and if he's going to collapse and die in front of you – call for help. ..... So that's the most important factor I think. (J Yea.) Is the patient going to die on you straight away.' (A5:391-413)

Patients who warranted a PRHO asking for help quickly, presented with clinical signs that indicated to the PRHO important compromises to their vital signs. These represented serious, potentially life-threatening changes but also included 'things happening quickly'. Patients who were *less urgent* (needing to be seen but at some later point) manifested symptoms and signs that were normal for those patients and perhaps had manifested these signs before. Patients who appeared to be responding to treatment or who the PRHO 'felt' was over the worst, were also candidates for the *'need to be seen at some point'* label.

> '(J What is it about those situations or those patients that you think two or three hours will be okay, and other patients it's a matter of now) I think it comes down to your assessment and like the vital signs, like are they shocked, tachycardial, very

breathless, have they got chest pain, is haemo-dynamic compromised, are they bleeding, is it potentially a big GI bleed or whatever. I think again it's sort of certain situations where you think This patient is probably at risk fairly quickly of something happening, and I think deteriorating very quickly, rather than this patient has probably been like this – sort of he's a bit breathless but he's probably been like this most of the day. He's been breathless previously before, he's had a nebuliser and he's picked up. ..... So we've sort of got him over the worst and he's been – the patient's been like this previously, and you know that actually you're okay, but do they need just another line of treatment, and can you review them to do that really. It's doesn't need doing now but it needs doing fairly shortly within an hour or a couple of hours or so, really.' (A6:400-22)

When the PRHOs were in situations where they knew what to look for, knew what to do and where delays in administering treatments were known not to make a difference to the patient, it was considered a situation where senior input could wait. The PRHO also needed to feel he was able to manage the patient and be in control of the situation.

'Well it depends on what – like if the situation – there's a problem, the patient's ill, you know why the patient's ill, you know what you can do to make them better, and you can do that by yourself. (J. I'm with you.) That's fine. Because you can just get on with that and then later on just inform them that, for example, you know, just a chest infection, you know, somebody develops a chest infection, we all know, we've done Medicine and everything, and we've treated them. Even if we hadn't have done Medicine you know how to treat it. It's quite straightforward and then like at the end of the day all I have to do is let them know that I've done this and then that's fine.' (B14:116-128)

If a PRHO did not understand the case or the signs that the patient presented with, or what to do, but recognised from their assessment of the patient that the signs were not immediately life threatening, he might make the decision to *call for* ***advice***.

'Em, just last week, for example, a patient who was having chemotherapy came in with chest tightness. Now I did a basic screen and it came back negative – now should I send the patient home or does he need a full further work-up – I wasn't sure, not enough experience so I asked my SpR and he said Do this and this, which I'd done, they came back normal, send him home.' (A5:63-68)

The PRHO needed to gather data so that he could understand the patient and the situation well enough to judge whether he needed help and what sort of intervention was required from a senior. Importantly, he of course also needed enough information to assess whether he was working within a situation that he understood well enough to make this judgement call.

6.2.3.3 Situational cues

The PRHOs described using cues to help them assess patients, situations and their ability to manage.

6.2.3.3.1 Situational cues taken from patients

By the end of the pre-registration year, being faced with a patient who was ill was not, in itself, a cue to gain immediate help from a senior. However, patients showing quick deterioration or 'life-compromising' signs instigated the need to seek help. PRHOs described feeling that they may manage a situation even if the patient was very unwell if the condition was following a slow, predictable or recognised pattern or one that was unaltered.

The PRHOs' knowledge of the condition and expectations about 'what was supposed to happen' informed their judgements. Having theoretical knowledge of a condition allowed the PRHO to anticipate potential future events.

'For example it might be a patient that you know is compromised from a respiratory

> function. They might have quite brittle asthma or whatever else. And you know that those patients can go off so quickly, and it's knowing about their past medical history and saying 'That patient's really unstable' and knowing at that point to say 'Right I need to see them now and sort it out', whereas some people might be quite ill but much more stable with it.' (D17:112-19)

PRHOs described being unconcerned or concerned / happy or not happy about patients because of the presence or absence of expected factors. Expected factors related to normal physiological signs as well as pathological signs related to conditions.

> 'It was the fact that their oxygen levels were 25 per cent below what they should be and the fact that the patient was completely unrouseable and basically sort of comatose. Erm and they had some neurological signs that they possibly had a bleed.' (A1:28-31)

PRHOs realised early on in the pre-registration year that the results of tests and laboratory investigations did not follow textbook 'normal' ranges and therefore were not always useful for differentiating between patients. What was an important indicator with these results was when the patient deteriorated further and/or shifted out of the patient's own particular range of normal. Patient deterioration from their 'normal' values indicated decline in the patient's health and also illustrated instability in the patient's condition. Concern for the patient lessened when results indicated stability or, of course, improvement.

> 'You just need to find out exactly what has been happening with them. If they've been fairly ill blood test wise recently or been getting worse, then I'd step in, but if they've been generally getting a bit better, had a bit of a temperature but clinically clear, I wouldn't necessarily consult a senior.' (A1:213-8)

As described above, the severity of the patient's signs also suggested the need to gain help as did the indication that something more sinister or major was happening.

> 'I just wanted her to come over! (laughs) Well, it was – I said 'This guy's sick, he's really tachy' – he was going up to two hundred – tachycardic, I can't remember what his blood pressure was but it was pretty rubbish, something like seventy systolic, you know, and he was cold and clammy and shutting down, and I said I'm putting fluids through as quickly as I can, I've got bloods, they've gone for cross-matching, but he's going to arrest I think, soon, so I said, "You need to come over as quickly as you can".' (A7:144-51)

Understanding the current state of the patient (whether the patient's condition was stable, settling or changing) relied upon knowing the background of the patient's condition and comparing initial test results with current ones. The nurses helped in giving information about changes from the patient's normal state. PRHOs also made judgements about patients in terms of what they expected to happen.

> 'I think the progress of the patient – you see – you watch the patient, you're there for an hour, you see if he's settling and then you know okay, if he's settling, that's fine. If you feel that he's not and er even with the medications you have done, that's one factor which definitely I'll let the Registrar know, I mean the Senior, know that something's not right.' (B8:430-5)

The PRHO therefore relied on knowing what had 'gone on before' to make a judgement about the patient's current state of illness. If the patient was not known or unable to give a history, the notes gave him cues including why the patient was admitted. The assessment of the patient and changes in assessment results also informed his judgement.

> 'So the first thing we do is see the notes because it's from a ward that you don't know anything with a patient – so just read her notes just to see what she was admitted with and whether she'd had a chest pain or whether it was the first time.' (B8:60-63)

Central to discerning between patients was the skill of recognising when someone was really sick.

6.2.3.3.1.1 The skill of recognising illness

PRHOs described developing over the pre-registration year, the skill of recognising quickly those patients who were very sick. This was an important skill for distinguishing between patients in terms of who needed their attention, who needed to be seen immediately, and who could wait.

The data suggested that recognising sickness required the PRHO to put information together and make associations through the presence or absence of collective signs to assess the patient's well-being. Putting information together allowed the PRHO to judge which patients were really sick.

> 'They are either – they'll answer your questions or they'll say 'I've got loads of pain, I want you to sort it out doctor', you know they're okay, but if they're a bit quieter and they're just not complaining about things, or urine output trails off, then you can tell when someone's quite sick. And also there are clinical signs as well, like urine output, like very fast heart rate, or you know, other sort of clinical signs like fast breathing rate. But there's just a look, and it's a colour as well, they look very drained and em, yea.' (D17:50-58)

From the PRHOs' accounts, knowing someone was 'sick' appeared predominantly based on the signs and look of the patient. The PRHOs also described a 'look' that very ill patients had which indicated how ill they were. Recognising illness or sickness in this way was often cited as perceptual and intuitive.

> 'I mean there's the scientific measures which are sort of their obs and if they're, you know, if they drop their blood pressure, if they've got tachycardia then you know they're in real pain. If they're, I suppose if they're routine bloods come back

and – but usually – it's usually quicker than that. (J 'Cos you were talking about opening the door ...) Em just looks.' (D19:111-20)

The signs the PRHOs reported in terms of recognising that a patient was very ill were: sweating, rapid pulse / tachycardia, high blood pressure, laboured and fast breathing, unconscious, urine output trailing off and generally negative changes in the observations. It also included commode sign – an urgent need to urinate. Perceptual feelings about a patient were important and developed from many encounters with sick people.

'(J So how do you know when a patient's really sick then? What is it that makes you think ah, really sick?) Oh it's just you get it with experience. You get a bit of experience. I mean you see lots and lots of patients all the time, and you just get a feeling. Like the ones that die, retrospectively you think 'Ah yes, they were really sick'.' (B11:292-8)

Initially the PRHOs learned to spot the obvious signs, but over the year began picking up on more subtle signs. As this knowledge developed it became more tacit, knowing that there was something wrong but not always being able to verbalise what it was and coming to the conclusion that a patient was very sick just by looking at them.

'(J Is there something that you can describe as being that's how you know when a patient's very ill?) I don't know. It's em – it's weird – I keep saying to some of my colleagues that sometimes nurses will call you to put a venflon in somebody, and you go into the room and you see the patient, and you're like 'Why are they putting a venflon in this person, because this person looks like they're about to die'. Everything's okay, their bloods are fine, everything's fine, it's just a sense I suppose, in a way. And it's the same thing with somebody who's ill, you go to them and you just get a sense that things aren't quite right, and then perhaps if you started looking at things a bit further you actually find that things actually are not right.' (D21:93-106)

For these PRHOs, nearing the end of the pre-registration year, 'knowing sickness' was difficult to express completely and although there were tangible and recognised components to it, it also included 'just knowing'.

Consequently, nurses, histories, investigations and examinations informed the PRHO and allowed him to judge how ill the patient was and whether the expected signs were present. Having this information, the PRHO then was able to judge whether the patient's normal values had changed for the worse and whether signs had appeared that were not present before. The PRHO needed to know what was happening, and had happened, to the patient to appreciate the significant changes of signs. Interestingly, the PRHOs always referred to relying on patient signs rather than symptoms to inform their judgements.

Being able to recognise signs, make associations between them and understand the significance of these, indicated a level of knowledge about certain conditions or a knowledge of physiology and patho-physiology which allowed the PRHO to work out what was happening. It also suggested that the PRHO knew what to look for as well as an awareness of what should be there and, therefore, was able to recognise when it was missing. The PRHO also needed to know what the presence or absence of signs meant and the likely complications, hazards or threats (risks) from any action. Without these pieces of knowledge the PRHO would need a senior, as without his assistance, he could not make an informed judgement.

6.2.3.3.2 Situational cues relating to the PRHO

Within the constraints of what a PRHO was actually allowed to do within the remit of his job, PRHOs described factors about themselves that they used to discriminate between what they felt they could and could not do and whether they could safely continue or whether they needed senior intervention immediately or in the future. The PRHO's knowledge and experience of a condition was crucial.

Judgements could be made based on previous experience and familiarity with similar

situations and conditions. In cases where the PRHO had had previous experience and seen similar things, he was more likely to know what to look for, what to do and know the likely complications.

> 'I've seen patients with similar problems, I know the sort of routine investigations I need, and things, and at that point you sort of think Well if I was calling a Senior at that point I'd be calling them and saying Well I'm going to give them pain relief, I'm going to do their bloods, I'm going to get an X-ray, and they'd be like Fine, what you're telling me for, wait till you've got all the results and I can come down and see them when you've got all the results together and we know where we are sort of thing.' (A3:83-91)

If what the PRHO encountered was similar to previous experiences and within the PRHO's range of normal or slightly abnormal, then he would know whether the situation required immediate input from a senior or could wait. What may have happened over time was that the PRHO developed a much wider range of what was normal, what was acceptable and what was familiar, so that their tolerance to uncertainty increased or, perhaps with experience, there was just less to feel uncertain about.

Not having experience of a condition was not in itself a cue for requiring input from a senior. The PRHOs described some cases where they may have had no experience but because the case was considered 'not complicated' it was not necessary to call on a senior. In other instances, PRHOs described using their knowledge of physiology or patho-physiology to work out an appropriate action.

> 'I suppose what that boils down to is – take for example – you get a patient admitted, you think they've got pancreatitis, so you can clerk them, find that they're tender up here, and you go 'Ooh, I think they've got pancreatitis', but then you don't need to pick up the phone and say 'I think I've got a guy with pancreatitis, what do you want me to do?' So in that situation I should know that I need to get a

> catheter in, I need to get some IV fluids up and to make sure he doesn't eat and drink and stress his tummy and make his pancreas work. We need to get bloods off, I know which bloods we need to get, we need to get blood gases, we need to give him a bit of oxygen. So you know which things to go for, so at the stage where the SHO walks onto the ward you can say 'Listen I've got these X-rays, and I've got this, I've got this, and I've done all this', that's not really I think where personally I'd call for help.' (D20:202-16)

PRHOs described knowing in some situations that they personally needed their senior without being able to verbalise why.

> 'Yea, it's just things that you do – you don't know why you worry. You just ring up and say 'Help, come and sort them'.' (A4:375-76)

Some examples of 'judgements in action' are presented in Appendix M.

Central to discerning about ones own ability to manage was the skill of knowing one's limitations.

6.2.3.3.2.1 The skill of knowing one's limitations

PRHOs described factors that let them know that they had reached the limits of their practice. These included whether the situation was out with their experience, whether it was something that was expected from a PRHO and legal for them to do, their feelings of comfort as well as knowing that it was personally beyond their capabilities. 'Gut feelings' were again prevalent.

> 'Em, I'm afraid it's back to that gut feeling. I guess I think about 'How much have I done this in the past?' 'How much do I know about this subject?' Again it's experience. Have I seen – you see it's difficult because you don't know how well you know your own limits. You can only be as – you don't know what you don't

know. I'm only aware of what I am, what my short fallings are, what they're not.' (B10:540-48)

PRHOs described signs that indicated they had reached the limits of their knowledge. For example, running out of ideas and needing to rely on other sources for information. The data suggested factors that PRHOs used to assess the appropriateness of them undertaking an action: their previous experiences of cases where things had gone well or had not gone well (and may have influenced feelings of competence), their knowledge of the condition including knowledge of potential problems and their overall feelings of confidence in each instance. These variables necessarily led to variations between individuals as did the PRHO's emotional tolerance for problems or uncertainty.

'Em, I think the major factor is if I'm just not happy. If I've seen someone and I'm not – just not – again it's just a gut feeling again – I know either some part of me is worried about them, I think they're not well then I'd ring for help. Em, I think that's mostly I've either not seen it and I don't know what the next step is, or I have seen it and I'm then worried – you know, I'll start the sort of the next line of treatment but would expect someone senior to be involved at that point, because of either the prognosis being bad or it being particularly unwell. I think it's mostly if I'm just worried about the patient and whatever. (J Yea. Can you unpick that worry at all?) Not really. (pause) It's just you – it's difficult to explain, you just - either you're worried that you're missing something important and they could die because of it, you know, the very basic – or you just think things could be better to make them better, but you're not really sure what to do. But mostly it's just sort of a, just a general feeling that they're unwell and you know you're at your limit, and they need someone else to come in and help. I think that's probably sum up the worry.' (A4:350-70)

C13 felt that 'knowing your limitations' was a product of training rather than a product of insight. He had learned to be cautious.

'I think it's probably just the fact that you learn to be cautious and you learn, you know that when it comes to hearts, and when it comes to these things, you don't rush ahead on your own as a Junior doctor and initiate a whole series of treatments for a heart condition, or for something, you know, that some sinister, or some serious condition. But if it's something very innocuous, everyone – you've seen – as a senior medical student and as a House Officer you've seen so many urinary tract infections that you just don't get worried when you see one any more. And you know that - if I don't prescribe that I know it wouldn't get done. (J Yea.) It's such a straightforward thing. But I don't think it requires massive amounts of insight, self-insight. Probably better if we had it but .' (C13:561-77)

Again feedback and comments from others mediated the PRHO's actions for subsequent, similar situations. Although often direct comments were made to the PRHO when mistakes were made, feedback was more likely to be interpreted from the subtle questions people asked or from their reactions to the PRHO's actions.

'I mean I'm sure most people have had cases where they've been on-call for the weekend and Monday morning someone's just said, or just questioned something or asked something or, you know, or you've handed over to the team and said ... you'll tell them about it and perhaps they say Well perhaps you could have done this ... but em but not – I'm not sure. I mean I think people do get fed back to if there are errors of – you know – on a large scale' (A2:431-7)

'I guess I will also – I bounce off – I will look at how the nurses look. If they look happy then I'm happy. If they're starting to think ...'You sure you know what you're doing here?' then I'll ring. Sometimes I do think I know what I'm doing and look unconfident so I'll still ring.' (B10:559-63)

PRHOs reported considering the risks to benefits of continuing in situations, and whether there was another feasible option, other than continuing.

Due to the different experiences the PRHOs had had, and their different levels of competence, there were likely to be variations with regard to their abilities. The data also indicated that there would be variation in what PRHOs perceived to be appropriate for them to undertake without senior intervention as well as how much they would be willing to do. PRHOs recognised differences between themselves and other PRHOs when calling for help and advice from seniors.

> 'It's a lot to do with personality as well, because some people are very confident, so much so they're arrogant, and they've just got to do everything themselves. That's bad. At the other end of the spectrum you've got people who just call about everything, lacking self-confidence.' (A5:281-85)

PRHOs may use personal rules or heuristics to help guide their behaviour and recognised these as idiosyncratic to them.

> 'I think I tend to have a think about it, and if I think about it twice then it means I should probably have a chat to someone.' (A1:229-30)

> 'I think if I've not seen the problem before then I would always get some advice, whether it was, you know whether it be straight away or whether it be in half an hours time. (J So even if you had read about it you ...) Yea, if I'd never seen it clinically then I would always because I think things are different clinically from what you read about in a text book, and you know, you don't always know that what you're seeing is definitely what you've read about in the text book. You know, there could be other causes for a similar kind of picture, so I think if it's something that I've not seen before I would call for help. If it was something where I think I've reached my limits and I've done everything that I can think of, but I'm still unhappy or, you know, I think further stuff might be required, then I'd ring for help then.' (A3:277-92)

> 'If I haven't done something before then I will not do it for the first time without supervision. Some people might, but that's my personal feeling and I'm not about to start doing things if I haven't seen it done before. (J And there's no compromise to that?) No.' (B14:380-88)

> 'If at all I don't understand anything or if I'm not sure I'll always at least make a phone call. If I am concerned I will make a phone call and try and be – em push for somebody senior to come and see the patient.' (D21:42-5)

It is unsurprising that with many variables to contend with and individual PRHOs seeing different conditions with different regularity and with variable success, the PRHOs' personal feelings of whether they felt able to handle a situation mediated whether they contacted a senior.

> 'Well I think that all I've described to you here is the way I deal with things. There's no manual on calling for help and there's no – I'd say there was very little advice given on calling for help, you know at the beginning people just say If you're not sure call for help. But there's no point at which people say to you Look, you've been in the job a few months now, you should be calling for help in these situations – you pick it up on your own really. And I suppose that's why it's always down to how you feel about the case and whether you understand what's going on and whether you're happy about what's going on and whether you're happy to just leave it with what you've done.' (A2:413-23)

For some cases, all PRHOs would contact a senior. For other cases no one would contact a senior. In the more border-line cases, individual characteristics of the PRHOs may come into play. PRHOs as individuals, were likely to differ in their levels of self-assuredness and how cautious they were, which manifested in how certain they needed to be before feeling happy to continue without senior input. Their tolerance to uncertainty was also felt to be a mediating factor. What was considered important for ensuring that an individual worked

within his own limits of practice, was the potential consequences from his actions:

> 'Because if it's something risky then you just – you don't dare do it.' (B11:519-20)

6.2.3.4 Additional factors informing decisions

The PRHOs described having multiple factors to take into account in their decision to engage a senior. The previous sections focused on the factors inherent within the patient and their condition and the factors that the PRHO himself brought to the situation. The following section describes factors that in themselves appeared not to influence contacting a senior but, weighted with other factors, may have made contact a more desirable or less desirable activity.

6.2.3.4.1 Senior factors

PRHOs described considering the reaction they would get from a senior if they called. This appeared to be a comment on the nature of the enquiry (reasonable / justifiable) as well as of the particular senior. PRHOs might be influenced by who the senior was and how well they knew him. The PRHO may think more carefully about calling if the senior had a poor reputation.

> 'It seems an awful thing to say but it also depends who's on call with you – who your Senior is. Em, if you know it's a Senior who you'll either get on with, or you know is quite good, quite efficient, gets things done straight away, then you would have no hesitation in calling them out, you'd think 'That's fair enough'. If it was someone you either didn't like, which doesn't really happen really, or if it was someone who you knew wouldn't make a decision, wouldn't just – would just dither and dather about it – you'd probably just try and sort it out yourself, or you'd have a greater threshold for calling them, 'cos you knew you could probably make things worse by calling them.' (B11:458-68)

For some, knowing the person they were contacting or knowing that they would get a

positive response, acted as an encouraging factor.

> 'Sometimes you hear stories about SpRs being abrupt and a bit rude and people saying why can't you do it yourself, but the one's I've had so far have been fantastic. (J That's good. Yea.) And so, that kind of response makes you phone them more as well, so you don't feel too worried about phoning them.' (A5:119-6)

> 'and I didn't feel bad phoning her at the time because she was someone I knew quite well, and a peer rather than just a colleague' (A7:152-4)

Perhaps knowing a senior made one feel less vulnerable, especially if contact indicated to the senior the limits of the PRHO's knowledge. However, the importance of knowing the senior was not true for every PRHO or applicable for situations where senior input was definitely needed for patient care. As one PRHO explained:

> 'I don't think it would influence your actions. I think you'd be a bit more 'Oh, should I really phone them?', but I think you always would, but I don't think that would come into it really.' (A7:422-4)

Rather than being a factor that influenced engaging a senior, knowing a senior may have made it easier and more comfortable for some PRHOs.

These data suggest that the PRHOs took into account what particular seniors could, and would, bring to a situation. PRHOs also described considering how much effort was required in contacting a senior for the potential benefits.

6.2.3.4.2 Having time

Time and timing affected contact with seniors. Time related to working during the day or night and has been described in other sections. Time also appeared important from the perspective of whether the PRHO had time to think things through.

'.. you haven't got the time factor there – you haven't got the time to sit down and think 'Right this is what I do'.' (A3:114-115)

Having time might mean that the PRHO could work out for himself what was needed rather than contacting a senior.

In some hospitals, and in some situations, the PRHO also had to take into account the time it would take for a senior to respond. For example, if the senior was in theatre or if the PRHO had a medical problem in a surgical bed or in instances where the seniors were busy in another part of the hospital.

6.2.3.4.3 Litigious patients and relatives

PRHOs may have also been more likely to contact a senior, even though there was no perceived clinical need to do so, in cases where the patient or relatives were known to be litigious or likely to complain.

'(*if*) there is a hint of medico legal problems coming out of patients..... they are known to have complained or things like that, I try to be careful and always consult my senior before taking any decisions'. (B15:248-51)

The perceived threat from the patient to the PRHO or his team would motivate this action, rather than the welfare of the patient.

Other factors that made a situation more desirable / less desirable to contact a senior were the effort it took to make contact versus the potential gains and also the PRHO's feelings of confidence.

6.2.3.5 Concluding comments

PRHO judgement about if or when to contact a senior appeared to be bound in multiple factors. At the end of the pre-registration year their theoretical knowledge could be

supported by personal knowledge which they had gained from their experiences. This led to a rich and complex understanding of inter-relationships between presenting signs within given situations. Having a lot of exposure to a particular pathology and having had positive outcomes from previous encounters made them more likely to feel confident in managing similar situations.

Mediating all the PRHOs' judgements was their feelings of assuredness in the completeness and correctness of their knowledge and experience, and their ability to manage each situation that they faced. The decision not to contact a senior demonstrated the PRHO's willingness to take responsibility for the patient and his own actions. His confidence, and assuredness in his competence and knowledge, manifested itself in taking responsibility for the patient without a senior and the consequences that came along with that decision.

The way in which PRHOs practised and learned as they worked, ensured variability in what the PRHOs knew and experienced. Different personalities ensured that there were differences in their emotional tolerance to situations and how each PRHO would respond. However, over the pre-registration year, there was significant development in all PRHOs' knowledge and ability. As their clinical knowledge increased, the PRHOs described being more tolerant of clinical uncertainty.

A simple diagrammatical representation of the process of contacting a senior is presented in Figure 9.

Figure 9. Diagrammatical representation of the process of contacting a senior

6.3 Interpretation of the descriptions

The following sections again describe the system and processes under which PRHOs trained and worked and made judgements on whether they needed the guidance of a senior but this time details my interpretation of the previously described categories. This section also captures my emerging understanding of a dynamic framework that guided the PRHOs' judgements on whether or not to contact a senior.

6.3.1 Functionality of the system and of contacting seniors

PRHOs' descriptions suggested a functional and effective system for training juniors: placing the PRHO in a team with more senior people meant that he gained experience and training whilst working directly with sick patients and ensured his legitimate role within the organisation. The checking and monitoring processes conducted by more senior doctors ensured that the junior doctor gained experience and knowledge whilst also working safely.

The PRHOs started practice recognising that their theoretical knowledge alone was inadequate to manage cases on the ward. Although well practised in performing patient history and examination as an undergraduate, they were not always able to transpose this knowledge into what it meant when applied to patients. Also there were now consequences from their actions. Having limited 'practical' knowledge and/or being acutely aware of the consequences of their actions, ensured that PRHOs went to seniors to get help and advice because there were times when they felt he could not, and morally should not, work independently. This, along with the obligatory interaction of having to keep 'others' informed, allowed the seniors to informally teach the PRHOs as well as monitor their activities and development.

The PRHO's medical degree was not an award of competency to practice but arguably confirmation that a level of propositional knowledge had been reached and, perhaps more importantly, that this most junior of doctors was capable of recognising the limits of his ability in practice and could be trusted to act appropriately. For example, when the PRHO

started his first house job he had very little practical knowledge of prescribing drugs. Although he may have known the action of the drug and which ones to give, he might be less sure about the dosage in particular cases and how to administer the drug. As a consequence, early on in the year the PRHO would have to check with seniors before administrating even the most straightforward of drugs. The PRHO's sense of responsibility to his patients ensured that seniors became involved. The PRHO left undergraduate training understanding the importance of his responsibility to the patient and with the appropriate language to interact with his seniors.

> (*PRHO saying what seniors say*) 'I know you've gone through Medical School, I know you can assess a patient, you know, you can examine them and you can tell me what you've found, and that's the most important skill that you can have right at the beginning.' (D17:341-45)

From doing the initial assessment and examination, the PRHO ensured that the basic information about patients was recorded in the file for his seniors. It also gave the PRHO exposure to perhaps hundreds of patients with a range of presenting features. From engaging in 'the basics', the PRHO became informed of what he needed to do next, and this allowed him to make a judgement about whether this situation was beyond his current ability or not or whether he required intervention from a senior. Knowing the patient in this way also gave him currency when talking to seniors.

> 'It's like assessing them for yourself, but also if you do refer them on to actually refer them on, as I said previously, in a proper fashion, to say I've got Mrs So and so on Ward 22 or whatever, and she'd not very well, she's quite – she's got chest pain at the moment and she's actually hypotensive, her blood pressure's whatever, and just to sort of say well things I said she's got an ECG and she's got STC segmentation elevation which is new from previously. And she's got a previous cardiac history, or she was admitted with unstable Angina, or whatever. I think if you go through that and go from the notes, know about the patient, when you pass

them on in the proper way, a professional way, and you get a reasonable response.' (A6:466-95)

The PRHOs perceived that working in teams meant that all grades functioned more efficiently and effectively. As juniors they processed the masses of basic information which allowed seniors to start their input at a more strategic level.

'cos if I'm say, going to sort someone else out who's really ill and the same person who I saw earlier in the night is ill it saves them a lot less work if I've already seen them and discussed it with them. Then they can go straight for other tests or similar management' (A1:188-92)

'Because otherwise if you don't inform them then they would start seeing the patient as a new one and do everything again, and the whole process just takes longer.' (B15:449-51)

The PRHOs recognised that they must develop because within 12 months they would become SHOs; the people who the new cohort of PRHOs would rely upon. The PRHO needed to push himself to take more on and move towards greater independence, but this needed to be tempered with 'being safe'.

'Sometimes I have thought 'Well maybe I should have rung.' But then there's another part of you which feels that you want to push yourself as far as you can so you can grow, but then you have to remember that you have to think of safety as well.' (B10:233-7)

Another reason that it was considered desirable for the PRHO to become more independent was because of the strain this high level of dependency from juniors put on the seniors and therefore, it could only be maintained for a limited period of time. As a

consequence, the PRHOs felt they needed to balance their own needs with pulling their weight.

> 'Because you have to take responsibility, you have to because otherwise it's like an escalator, you've got to – if you stand still you've got Consultants falling out the top onto the golf course or whatever, or the GPs falling out, and you've got to keep up the pace and be there.' (D18:251-5)

The PRHOs' descriptions of clinical practice and training appeared to suggest that the system of working and training ensured that the PRHO was dependent upon more senior doctors: the PRHO had limited skills, there were restrictions placed on what was permissible for them to do independently and the etiquette of practice and established ways of working required continued interaction with the more 'responsible / accountable' senior. The expectation was that the junior would learn from these experiences and from his seniors, so that the PRHO acquired skills and knowledge from practice and moved towards becoming more independent of the seniors.

The data and analysis appeared to suggest two tenets underpinning this system of working whilst training that allowed it to function effectively. These two tenets were important for the PRHO to actively demonstrate in his decision making and through his actions. These were:

- ***Act responsibly*** when dealing with sick people
  The PRHOs knew that they must contact their seniors and keep them informed of what was going on. They should also contact them when they were unsure about a situation or did not know what to do. This mechanism ensured that patients were not affected detrimentally by having a junior member of the team learning how to practice from real-life situations. If it was the responsibility of the PRHO to uphold this tenet, it was the senior's responsibility to respond to the PRHO when he requested support.

- ***Progress and develop*** towards independent practice
  PRHOs gained experience and advice from seniors and the expectation was that they learned from these. PRHOs needed to progress in their training, become less dependent and take on more responsibility for patient care. Within a very short period of time they would be SHOs, with PRHOs of their own to manage.

These tenets demonstrate a potential tension in a system that has dual roles - delivering health care whilst also receiving training - but clearly the PRHO's responsibility to patient welfare was paramount and his own needs subordinate to this. However, to sustain an environment that allowed the two to exist together necessitated creating a balance between the two. This was done by discerning between the many options that he faced so that he could work safely within a service whilst also developing his skills. In order to work effectively within the system described above, the PRHO needed to be able to:

- ***Balance*** working safely whilst also progressing
  Moving forward in their development needed always to be tempered with acting responsibly towards their clinical work and, specifically, patient welfare. The creation of this balance was crucial in allowing training to occur whilst delivering a service.
- *Be* ***Discerning***
  PRHOs needed to be discerning so that judgements could be made on what was the most appropriate action to take and when. The PRHOs used insights from others and from their own assessments to categorise, classify and make these judgements.

6.3.2 Beginning to understand balance and discernment

'Balance' and 'discernment' became core categories in this study and were pervasive throughout the data and a recurrent theme within the analysis. They were not just necessary for upholding the tenets just described, but essential skills for many aspects of the PRHOs' working lives. The following section describes the pervasiveness of these categories in the data and ultimately led to the importance of balancing and discerning consequences in the PRHOs' clinical practice. The following section describes the

analysis that led to this understanding.

6.3.2.1 The system revisited

The system predominantly described by the PRHOs was of a functional and effective model for training doctors. In other descriptions, elements were missing from their own practice or they knew of people who had had negative experiences. What came to light from mapping 'the system' and engaging with these negative accounts were the essential elements that ought to be in place for 'the system' to work. It was apparent, however, that these were not always in place or upheld, and these gave insight into the 'real' world of working and training rather than the model on which it was based.

- *When recognising the need, a PRHO will contact a senior*

The PRHOs were expected, when they recognised that they needed senior intervention, to seek it. However, what came from the data was that PRHOs made decisions not to contact a senior even when they or the patient might benefit from his intervention or help. These data suggested that the decision to contact was not purely based on recognising a need and was more complex than following simple system rules.

The PRHOs decided not to contact their seniors for a number of reasons. By interrupting a senior, the PRHO was taking the senior away from another patient. By contacting the senior at night, the PRHO could be interrupting the senior's sleep, which could affect the way in which the senior functioned the next day, again potentially having a detrimental effect on patient care. In these instances the PRHO appeared to be putting the team's needs ahead of his own.

> *Referring to the senior* 'They're twenty four hours on call and then the whole day after, so you just try and avoid waking them up because sometimes they've got a long day and the next day they're in theatre all day, or something like that. So if you can at all manage the patient then ... don't call them but, if you're unsure, you

don't feel good about the patient, then yea, by all means do call them. They like to be called as well anyway.' (D21:365-71).

The PRHOs had to take into account the difficulties the senior may have in helping them and the impact this may have on the senior and on patient care. Not to do so would demonstrate disregard for patient care and for their seniors. Hardly surprisingly, the PRHOs were reticent in calling their seniors out at night unless they were sure that an individual patient would suffer as a consequence of not calling.

A PRHO might want to show his ability to manage situations by not contacting his seniors and therefore demonstrating to his team, his ability to work independently. As a consequence of not contacting the senior, a PRHO needed to work harder towards finding a solution.

'You don't want to – you want the Registrar to arrive on the ward in the morning and for you to have done A to Z, and you've done it, and you've racked your brains, and when you first start you ask the nurses a lot and they sort of push you – the nice nurses push you in the right direction, you know 'Doctor would you like to do this', and it's like 'Yes, I was just thinking about it'. So there's the balance between, you know, you don't want to call your SHO for a Venflon in the middle of the night, when they're in bed. And you find all sorts of ways of getting round these things, like changing the tablets to oral tablets, or just withholding it and doing it in the morning, or dumping it on someone else, or something like this ... ' (D18:77-88)

In these instances the PRHOs were interpreting the situation and the rule 'when recognising a need call'. They appeared to consider and balance the consequences of 'calling / not calling' ultimately in terms of patient welfare but there were also elements of supporting their team as well as their own needs and showing themselves in a positive light.

- *A senior member of staff will come if called.*

PRHOs told stories of difficult and uncooperative seniors who did not come when called.

> 'it wasn't so much that I didn't trust his judgement, he was just lazy and you couldn't rely on him to come' (D19:478-9)

As well as reports of people not coming when contacted, there were tales about seniors being annoyed or aggressive when called and how this would lead the PRHO to be less likely to call these individuals in the future. Interestingly, accounts of problematic seniors were likely to be second-hand rather than from personal experiences.

> 'Sometimes you hear stories about SpRs being abrupt and a bit rude and people saying why can't you do it yourself, but the one's I've had so far have been fantastic.' (A5:119-21)

PRHOs described how they learned to gain adequate support by managing situations and their seniors.

> 'I suppose the reason I've not had problems getting people to come and see people because by the time I'm calling them they're not going to turn up and say, "Can we have this, this and this done", because I've done it and I've got the results ready for them, so I'm not really wasting their time so much – say I've got all the results can you come and review them, I'm not very happy. Or else I'll be painting it in terms to them where I'm concerned enough that I'm calling them before – that I've thought about doing all these things, but I think they're so ill that they need seeing and I will continue to organise everything.' (A2:369-78)

> 'I mean there are times when I've asked for help and nothings happened, like no one's come to see the patient when I've said you know, 'I really think you need to see them', and they've not come and I've had to ask again, and ask again, and

badger them until somebody comes.' (B9:321-5)

Seniors did not always come when called. They may have, like the PRHOs did with the nurses, judge whether the request was legitimate or perhaps prioritised their activities as the PRHOs were also doing. The seniors and PRHOs both needed to be discerning and balance the demands of a busy job. However, from the accounts there were seniors who were perceived to be lazy and uncooperative and who appeared to put their own needs before those of the team and, more unacceptably, their own needs before the patient.

o *The senior brings more knowledge to a situation.*

As all seniors had more exposure to patients than the PRHOs, their opinions were thought to have more currency than that of the PRHOs.

> 'It's extremely, extremely difficult because, you know, like I said, we deem that the Seniors have got more experience and that just implies that they're better, that they know how to deal with things better, but that is not necessarily true...' (B14:164-67)

The system relied upon the senior being more informed than the PRHO. From their experiences, the PRHOs realised that some seniors did not bring any added value to a situation and although there were instances when this was a comment about individuals, there were other situations where the PRHO recognised that contacting a senior would not help.

> 'So I knew something was wrong but I didn't want to call for help straight away – I thought there was no rush, the patient's stable ... (J So it wasn't as abnormal that you'd think I need to do this ...) ... straight away – yea, 'cos abnormal sense it's elevated, probably need a scan of some description. But you can never get scans over two days anyway, so there's no real point in rushing it. Wait for the Wednesday – the boss he said get the scan done, but non urgently, and it was done.' (A5:358-68)

In some instances, calling the senior had no perceived benefit. In most instances, however, the PRHOs relied heavily on their seniors to support them and were in an unenviable position when support was not available or the seniors were unable or unwilling to help.

- *A PRHO has the right level of confidence*

As the PRHO needed to decide when he needed to contact a senior, he required a level of confidence that was compatible with 'the system's' perspective on when he needed assistance. Being under-confident meant that the PRHO was too reliant on others, specifically his seniors.

> '– it's a big problem for the Senior staff as well because obviously if you get a very unconfident House Officer who's calling you for everything, everything under the sun, I'm sure it'll get annoying. And you think well 'Why can't you sort this out yourself?' Whereas if you've got a more confident House Officer who'll sort out the majority of things on their own, and just let you know later on, it's obviously much more beneficial for the Senior staff.' (B11:117-24)

But an over-confident PRHO was also known to bring problems for seniors.

> 'There is the risk of if you're too confident and you never call for help, you can get into trouble. When I say 'get into trouble' I mean get the patients in trouble and you can get them too sick before a Senior gets there. So there's a fine balance, you've got to tow the line and get it just right.' (B11:648-53).

'The system' appeared to require that the PRHO was neither over confident (in working beyond their remit or abilities) or under confident (when deciding what to leave for someone else). The PRHO who lacked confidence put a strain on those supporting him. Although this was expected at certain times in the pre-registration year, it was not a

situation that arguably could be sustained at that level throughout the year. Over confidence might be perceived as less problematic and even desirable because these PRHOs got the job done with the minimum of senior intervention. 'Desirable' that was, until the confidence interfered with patient care. Whilst an under confident PRHO put pressure on the supporting team, the over confident PRHO had the potential to 'not be safe'.

6.3.2.2 The process of engaging a senior revisited

It appeared from the data that the PRHO was expected to adhere to the following 'rules':

- He needed to keep his seniors informed about what was happening on the ward with regards to patients and what he was doing;
- If the PRHO knew what he was doing he could carry on, informing the senior at some point
- If he perceived that he needed input, the PRHO should contact the next available senior on his team.

These 'rules' appeared to exist to ensure safe practice whilst the PRHO was training.

Whilst the rules needed to be followed, held within the data were also 'conventions' which described the way work was conducted. The conventions were: being informed before contacting a senior; avoiding if possible waking up a senior at night and perhaps; informal discussions about patients with non-team seniors being acceptable, if the demands placed upon that senior were not too great. These conventions seemed to facilitate efficiency and / or team working. For example:

> 'I mean one of my friends used to ring up, having not seen the patient, but we haven't been told not to, and they used to – the Seniors used to get a bit annoyed that, you know, and they said to her, "Look, you have to go and see the patient first, I don't mind helping you but I need to know, you know, if they've got oxygen, do they look like they're blue and dying, or are they just a bit puffed because they've walked up the stairs?" Things, you know – I mean kind of get some handle

on exactly what the situation is, but no, we were never told that.' (A3:475-83)

By doing the assessment of the patient first, it allowed the PRHO to make a judgement on whether he could / should continue or required help and advice from a senior colleague. This meant that the perceived need for contact was based on justifiable need. However, the PRHOs were not told that they must have a legitimate and informed reason for contacting their senior and had learned this in practice. This was also true for waking a senior.

> '...so what happens is it's an untold rule that you don't bleep the registrar in the middle of the night because that's the only time in which they get off' (B15:438-40)

In contrast to the 'rules', conventions appeared not to be overtly stated and seniors employed more subtle ways of ensuring that the PRHO adhered to them, such as uncooperative behaviour or being terse. There was no clear explanation from the data as to why conventions were more covert and subtle. Perhaps this was because senior intervention had to occur at some point as it was an important safety mechanism for training juniors in practice. It therefore needed to be followed. The conventions might facilitate the team in working effectively but these could never, despite the above quote, be viewed as 'a rule' because the PRHO needed to be able to reject the convention in favour of patient safety.

> 'But I don't think there's much wrong with calling for help too much, you know. Certainly it might be irritating or annoying to the SHOs or the Seniors, but I don't think you could ever be criticised for calling for help.' (A2:463-66)

The PRHOs had learned different ways of operationalising the rules and conventions and the practicalities of actually adhering to them. This meant adapting the operationalisation to the situation in which they found themselves.

> 'Yea, and you go through your own team..... But sometimes you can't and you know, it's a question of using your judgement and seeing whether the patient's best interests are there and being thought about, and if you don't think they are and if you think they're actually being compromised, you know, their care is compromised, then you have to make a decision and decide that 'No, this isn't right', and take it further.' (B14:182-191)

Each situation relied upon a PRHO to assess the appropriateness of an action. The rules were there to ensure patient care and the conventions were for the efficacy and co-operation of the team and, as such, were subordinate to those that were concerned with patient safety.

> 'But they always say, just before they toddle off 'Don't hesitate to call me', and you often say 'I won't bother you' and they say 'Well if you need to, do' and I say 'Okay if I have any problems I will ask your opinion, but if there's things that can wait I'll let you get sleep', 'cos they've got to work the next day as well.' (D20:408-12)

However, some seniors were known for being unfriendly, cross, unhelpful when contacted and, as a consequence, the PRHO would only interrupt them if there was no alternative.

> 'I think that was the night when there was an SHO on who was very very competent, a very senior SHO, ... he would get pissed off if you ring, if you rung him, as opposed to other people who are much more approachable. And he – if I – I think it would be basically because he'd been in the job for a while, been an SHO for a while, and he was just fed up of doing night shifts and things like this. And from his point of view further down the line it seems inconceivable how anyone could worry about issues that House Officers worry about. I think 'cos he just – one: he was quite a hard character, two: he'd been an SHO for a long time and therefore was very competent, and, you know, he wasn't afraid of leaving you to sink or swim. So I didn't ring him, 'cos I didn't want to. I just thought about it – I

didn't have much else to do, I only had one patient, just one patient, so I just focused on him and thought about it.' (D18:170-86)

The PRHOs' perceived themselves as responsible for instigating contact with their seniors. However, in their stories there were apparent 'safety' mechanisms employed by the seniors to check PRHOs were doing as they ought.

'And if there is something else that should have been done the Registrar just let's us know and it's a case of 'Why not?' (D16:144-45)

An important safety mechanism in the system appeared to come from the senior hearing the patient's clinical story. From this reporting the senior 'second judged' whether the PRHO had made the right decision to call. As each case needed to be discussed with a senior, the PRHO was continually engaged in some level of review about each patient that he had seen. Consequently the appropriateness of the PRHO's decisions was reviewed each time.

6.3.3 Practice - a world of consequences

The analysis of the data indicated significant benefits from being able to contact a senior. It also pointed to some interesting consequences which arose from a system of training that required doctors to be discerning, hierarchical and to work in close-knit teams for it to function effectively. The potential consequences of this particular system of training are now described.

- *Being judgemental and being judged*

Working together, the PRHOs described people beginning to know what each other were capable of and developed trust or distrust in one other. As the PRHOs judged the nurses, SHOs etc, PRHOs were aware that they were also being judged on what they did, how appropriate their actions were, and how good their judgement was.

> 'I'm not quite sure where they'd rate me.....you'll hear comments *(from SHO who were on-call with other PRHOs)* about who's called them a lot and who hasn't, and who they felt was wasting their time, and who wasn't, so I think they definitely make judgements on who they – when they're called by them who they trust, and who they're going to go and check on.' (A2:351-8)

The opinion of a senior regarding a PRHO's ability appeared important to the PRHO. This might be recognition of the effect a senior could have on the PRHO's career or because it gave the PRHO an indication of how well he was performing as a doctor. The judgement of the senior was perhaps important simply because the PRHO wished to be thought well of by his seniors.

> 'But he's one of those people who essentially you quite respect. You respect the knowledge and you respect the wisdom and you know, quite a cool cookie, and you think I don't want to run round like a – I don't want to flap because I know ultimately these are the people who'll write my references, or you know, they talk to the Consultant over coffee before theatre. What I want is, I want them to arrive in the morning and say 'We had a bit of an issue overnight but we've done x, y z'.' (D18:198-205).

Making judgements about patients and information was crucial within this system of working but in order that the PRHO worked safely, he needed to monitor and judge others. The PRHOs were aware that their actions were being judged and decisions about their ability as a doctor were based on what they did and said. As a consequence, the PRHOs' actions and behaviours were not only concerned with doing the right thing but also being seen to be doing the right thing.

- *Disagreeing with seniors – challenging your 'betters'*

The PRHOs described making judgements about the ability of their seniors but noted how difficult it was to challenge someone who inevitably had more experience than oneself.

> 'I asked somebody for some advice on fluid management and he suggested perhaps that we needed a Dopamine infusion for this lady's kidneys..... I sort of said 'Are you sure?', and at that point I felt a little awkward because I was challenging what he was telling me. And therefore I – next time the same situation arose I might have just got on with it myself and given this person some fluid, because I wasn't sure that I was going to agree with what they told me. ..... I know that they're my Senior and therefore I should take their advice, but sometimes I'm not a hundred percent sure that I agree with it and I don't want to be regarded as a little upstart, but equally I've been through the same training, just not perhaps for as long.' (C12:233-49)

When faced with an inadequate senior, PRHOs found ways of managing the situation so that there would not be repercussions for the patient and hopefully themselves. C12 found that getting his own plan agreed was easier than challenging his senior's plan.

> 'I'd much prefer them to agree with my plan rather than me challenge their plan. And therefore I would ring up. I would still ring I think or I would, when I next saw them I would say 'By the way I gave this lady a fluid ..... Do you agree?' (C12:266-70).

These data suggested that although doctors with more experience ought to be valued, PRHOs recognised that senior support and knowledge was variable and some seniors were valued more highly than others. The PRHOs perceived that they should take advice from seniors because of their seniority. If not in agreement with the senior, a PRHO might either find ways of circumventing the senior in future cases, or, if the advice was detrimental to the patient, seek advice from another more senior grade. Unsurprisingly, a direct challenge of seniors was avoided.

- *Team workers working in situations without their team*

As the PRHO worked within a system designed around the team, some expressed difficulty when their team was unavailable or unable to help.

> '..there was a young chap who blocked off his main bronchus..... but I bleeped my SHO and my Registrar and my SHO was in theatre with my Consultant. There's zero – no one else on the ward. The other House Officer on the ward was elsewhere, you know, wouldn't have been much good. Fortunately one of the Registrars came along, a different Registrar but because it wasn't my team I couldn't – he wasn't prepared to do that, and in the end an Anaesthetic Registrar came along, and they took him straight to ITU. But for those ten minutes it was fairly terrifying.' (D18:113-22)

At times, PRHOs also needed to work out off his team because the skills and knowledge did not exist within it. There was an issue about who to call if not one's senior. This was an issue for surgical PRHOs when faced with patients who had medical problems.

> '... so you have to go directly to the Medical Registrar and get them out of their bed to come and see your patient. And I've done that before in Surgery and it doesn't make you popular, because they don't like to come and see the Surgical patients particularly because they've got their own patients, and there's this perception 'Well you really should know some Medicine in Surgery and it's not my problem that you don't know'.' (D19:247-53)

The team approach to patient care may have created territorial behaviour. One PRHO described an instance where he was left without the support mechanisms he depended upon to function.

> '...a patient who'd come in with ... a ruptured aortic aneurysm or a leak in the aortic aneurysm. So he phoned me as the Surgical House Officer on call and said 'This man got a leaking aortic aneurysm, can you come down to X-ray and put in two grey cannulas and a catheter please because we're transferring him to *'. I

thought ...(weak voice) 'fine'... and the Registrar – this was during the day – so it wasn't even like it was the middle of the night – so I come down and the man's in the middle of an X-ray room 'cos they didn't want to move him back .... And they don't want him back 'cos obviously it's not an orthopaedic problem. And he's down in X-ray ...., and the Casualty nurse was going 'He needs to be in Resus'. But we phoned A and E and A and E said 'Oh no, he's not coming to A and E, he's not an A and E patient. He should go back to Orthopaedics', and if there was anywhere less appropriate than an X-ray room for resuscitating somebody it's Orthopaedics on the * floor.' (D19:396-428)

By not viewing the patient as that team's responsibility, it appeared to legitimise the senior's disengagement from this patient's care. The PRHO was not able to abdicate responsibility unless a senior was willing to take responsibility for the patient and when no longer surrounded by people who had collective responsibility for a patient, the PRHO had neither the adequate skills to manage the patient nor the authority to transfer him to a more appropriate team. As referring on to another team was a formalised process, the PRHO could not just ask someone. The PRHO needed to get the co-operation of seniors whom he had no authority over and because the seniors were likely to be unknown, the PRHO had no way of knowing how they would react to such requests. Contacting seniors in these instances could be stressful. Getting one's own senior on board took away the PRHO's need to 'manage' other seniors.

o *Working as a 'team' with non-doctors*

PRHOs could experience difficulties working as a team with nurses. Initially the PRHOs relied heavily on the nurses who taught them and supported them when their seniors were not available. However, this relationship could become problematic if the nurses made demands on the PRHO.

'I had been told he was aggressive, but he wasn't really being aggressive, he was sitting in the chair saying I will go, I won't go... And then I'd said to them *(the*

nurses) 'Look I'm not prepared to give this guy Haloperidol 'cos I'm just not sure that the Consultant would be very happy with that, and you know, we want to try and calm him down', and I was told 'Well we don't have the nursing numbers to be able to sit with somebody one and one. Just give him something to sort it out' (D21:213-20)

The PRHO continued to refuse to give Haloperidol as, although they could make life uncomfortable for the PRHO, the nurses were more dispensable than the seniors!

PRHOs talked about nurses describing patient's symptoms in such a way that the PRHO would have to see the patient, just as they had done with their seniors, to ensure that they came when called. Nurses were important to a PRHO but became less significant by the end of the year and therefore upsetting nurses had potentially less consequences than upsetting a senior.

There were potential consequences not just from the organisational structure of the system of training and working but also from the actual process of contacting / not contacting a senior. There were benefits from contacting a senior but there were also issues, drawbacks and problems associated with it. The PRHO needed to project consequences to favoured action(s), and the likely chance of these consequences as well as the severity or gravity of the consequences to the patient, team and the PRHO himself. The following list describes consequences from contacting / not contacting a senior and is drawn from previously referred to data.

- Potential negative consequences of PRHO not contacting seniors

  To the patient- Patient dying as a result of PRHO's unsanctioned action(s); patient does not get the best or appropriate treatment/care; patient suffers unnecessarily as a consequence of the PRHO's unsanctioned action(s)

  To the PRHO - Includes litigation, personal accountability if there are complaints; living with feelings of guilt if anything were to go wrong; getting into trouble or being

'pulled up' by seniors; feelings of anxiety and/or uncertainty.

To the team – ill informed and therefore unable to respond or anticipate patient needs; compromises their position as the people ultimately accountable for the patient; affects feelings of trust within team.

- Potential positive consequences of PRHO not contacting seniors

  To the patient – (no comment made by the PRHOs)

  To the PRHO - Pushing oneself; seeing oneself as 'able', projecting an image to seniors of being 'able'

  To the team– Not being interrupted; gets through more work.

- Potential positive consequences of PRHO contacting seniors

  To the patient- potentially more informed care, more experienced care.

  To the PRHO – Covers one's back; obtains backup and support (physical and knowledge based); gets reassurance and feels safe, reduces worry and uncertainty; learns from senior and gains feedback on decisions

  To the team – Facilitates information exchange, informed action takes place; PRHO can work beyond current knowledge and the limits placed on his practice and therefore can do more; fulfils legal obligations, team may not be needed by PRHO for similar situations in the future

- Potential negative consequences of PRHO contacting seniors

  To the patient – (None stated)

  To the PRHO - takes time; has reduced feelings of efficacy; if contact is perceived to be inappropriate, unreasonable or unjustifiable it may affect how he is viewed by the team.

  To the team - takes time; takes seniors from other patients; may irritate if inappropriate, unreasonable or unjustifiable.

In any given situation the PRHOs might be faced with negative and positive consequences

for the patient, the team and for themselves from contacting a senior. The PRHO needed to learn to balance the contra-demands and select actions which had the most favourable outcome and/or with the least negative effect, or if not known, the least negative potential consequence.

6.4 What influences a PRHO's contact with a senior? The emerging theory

It appeared that contacting a senior for his help, support, advice etc. was central to the PRHO working safely whilst training on-the-job because it allowed him to address the tenets that he needed to uphold in the pre-registration year and actively demonstrate in his actions: 'act responsibly' and 'progress and develop'.

There were potentially positive and negative consequences stemming from contacting a senior and many factors the PRHO needed to take into account. Unsurprisingly, in order to manage often competing demands, being discerning and creating a balance were essential activities for PRHOs.

From all of the data described previously, the following factors were identified as influencing whether a PRHO contacted a senior:

- System factors:
  - Upholding 'the tenets' of pre-registration training
  - Rules and restrictions on what was permissible for the PRHO to do without senior assistance or authorisation
  - Conventions and etiquette for working as a junior doctor
  - *And the chance and severity of consequences arising from not conforming*
- Process of engaging a senior - procedure issues:
  - Etiquette and conventions and established ways of gaining senior support in either medicine or surgery, in that hospital, in that team and with those seniors - expected ways of working within situations and contexts
  - *And the chance and severity of consequences arising from not complying*

- The individual PRHO
  - Knowledge of presenting condition (or lack of it)
  - Self-assuredness, cautiousness, emotional tolerance to uncertainty and to negative situations
  - Perceived feelings of competence
  - Maintaining personal rules and heuristics in practice
  - Gut reaction to situations and events
  - Whether the effect of a senior's reaction to being contacted affects them
  - Extent of personal practical / clinical experience
  - *And the chance and severity of consequences from being too confident or not confident enough*
- Presenting condition:
  - Presenting condition known as dangerous, unpredictable etc
  - Presenting condition following expected pattern or progression
  - Expected pattern, progression and likely complications
  - *And the chance and severity of consequences from not recognising the clinical cues or from intervening with that level of knowledge*
- Situational recognition:
  - A patient who was deteriorating and/or in acute ill state (presenting with compromised vital signs and potentially life-threatening changes)
  - Absence or presence or change of signs indicating deterioration
  - Quick deterioration
  - A situation that a senior or particular senior would expect to be called to
  - A situation that would benefit or not benefit from a senior or a particular senior's intervention
  - Not understanding the situation well enough to make any of the above judgements
  - Not able to gain enough information to make a judgement
  - PRHO unable to manage signs or knows it could be managed more effectively with a senior
  - Faced with complexity and little time to think it through

The senior's potential reaction to being contacted

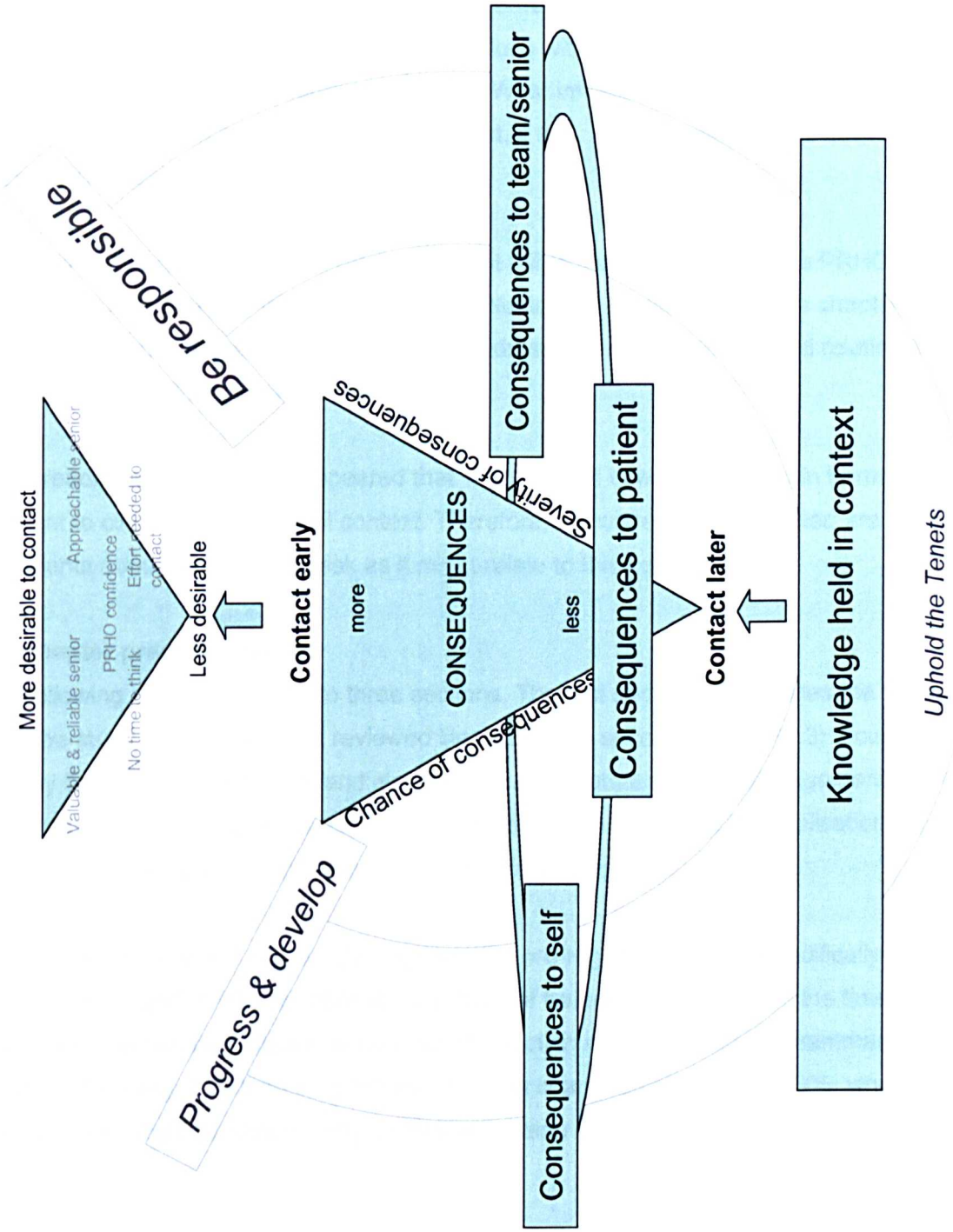
Chance of the senior coming

And the chance and severity of consequences from presenting condition and not recognising clinical cues

Hidden in the above list, but essential for making these judgements, is the PRHO's codified, personal and cultural knowledge: knowledge that the PRHO applied to the specific situation that he faced.

The conceptualisation of the data and the relationship between categories is diagrammatically represented in Figure 10 and discussed in the following chapter.

Figure 10 - Schematic representation of the relationships between the factors influencing whether or not to contact a senior



Chapter Seven – Discussion

7.0 Introduction

This study started with the following aim: to generate a conceptual understanding of clinical judgement in a 'risky' situation. The research question arose from exploring the literature on risk and from engaging in discussions with PRHOs about their perceptions of risk. The research question for the study was: What influences a PRHO's response to a judgement call within a clinical setting and what, if any, are the relationships between these influences?

The previous chapter described the factors that influenced whether or not a PRHO would gain senior intervention - the judgement call selected for exploration. In this chapter, the second half of the research question will be addressed, when the perceived relationships between those influences are described.

From reading the literature it appeared that 'risk' had not been considered in terms of what it meant to clinicians in a clinical context. Therefore, discussed in this chapter, are comments about the nature of risk as it might relate to this context.

7.1 Chapter presentation

The following chapter is split into three sections. The first section (7.2) relates the findings from the study to the previously reviewed literature. The second section (7.3) focuses on the key findings from the study and also introduces literature on clinical judgement which has not been previously reviewed. The third section (7.4) describes the implications of the findings for the Foundation programmes and clinical training.

The first two sections of this chapter relate to the pre-registration year, specifically between 2001 and 2003 and represent a picture of training as it existed at the time of the New Deal, Calman training and before the introduction of Foundation Programmes in the Northern Deanery. The third section describes the changes of 2004 and 2005, when the curriculum for the Foundation programmes was being produced and finalised and the

effect of the European Working Time Directive was beginning to be felt. For this reason the final section speculates upon the implications of changes that were known about but were yet to be fully experienced. It will be interesting to see whether those issues foreseen in this thesis do occur and what will become the lasting effects of these changes.

7.2 Contextualising the findings

7.2.1 The Nature of Risk

The Phase One data from this study demonstrated that thinking about 'risk' as a single or stable entity across individuals, as so many studies in medicine have done, is not a useful way of conceptualising the term as it related to how PRHOs perceived clinical practice. PRHOs labelled a considerable number of things as 'risks' but importantly this did not necessarily mean that the identified 'risk' had relevance to the labeller's clinical practice. For example, needle-stick injuries were described as 'a risk' but in practice they were actually rarely thought about or acted upon. By the end of Phase One it was clear that there were multiple hazards, threats, probabilities of problems and uncertainties that could, and were, labelled as 'risks' by PRHOs. The PRHOs distinguished between these clinically by their potential threat, the nature of that threat and severity of any consequence. However, even these features were not stable in the clinical context. Combinations of factors within a situation made some 'risks' clinically important whilst other combinations made another 'risk' more significant.

'Risk' as it was used by the PRHOs challenged the notion that practitioners (albeit junior clinicians) always conceptualised the term in ways that were consistent with the profession's use of the term or in ways that were concordant with a positivist paradigm. In fact the complexities of the term 'risk' and its multiple meanings and usage, gave credence to Dowie's reference to it as a 'conceptual pollutant'(1999).

Within the data 'risks' were expressed as concepts (classifying a situation, event, activity, outcome or action as having the potential for negative consequences) and this way of framing 'risk' was predominantly captured under Reported Risks in Phase One. The

analysis demonstrated the limitations of viewing 'risk' in this way as it ignored the causal relationships and the effect context had on this labelling process. For example, at night with less support, covering a large area of hospital, a PRHO might have labelled a patient presenting with particular symptoms 'a risk' but would not have done so if the same presentation occurred in the daytime or with seniors geographically close or when he had good nurse support. Calman (2001) acknowledged the role of causal relationships when describing hazards, although for him a 'known probability' for that hazard was needed before 'risk' became an appropriate label to use.

Ruck (1993) suggested that 'risk' ought to be viewed as a construct rather than a concept and this became a useful way of conceptualising the data and ultimately influenced the theoretical underpinnings of the analysis. Viewing 'risk' as a construct and therefore focusing on the relationships between elements rather than its features (as a concept would), made some events, situations etc. suitable and others unsuitable to label as a 'risk' - interpretation influenced whether 'risk' was an applicable label in an instance. More importantly, what became essential in conceptualising 'risk' for this study was considering it as an active cognitive process where the PRHO was balancing multiple and potentially competing factors. As such, 'risk' was not a single entity or stable across situations. Its perception was a clinical judgement. The notion of tolerable risks (Pidgeon *et al.* 1992) or acceptable tradeoffs (Fischhoff 1994) reflected best the PRHOs' position of how they lived with certain 'risks' to ensure certain benefits or, more importantly, avoided adversity.

Despite the complexity of the phenomenon and the problems of developing a conceptual hold on 'risks' in Phase One, there were important gains from talking to the PRHOs 'about the risks in the pre-registration year'.

The interviews gave insight into medical training culture and the way in which work was organised and managed and, as Renn (1998) suggested it would, indirectly indicated what was valued. By discussing the 'risks of the pre-registration year' the data demonstrated individual differences, collective labelling as well as cultural imperatives. These appeared

to manifest values at a personal level as well as those of the profession.

What was clear throughout the Phase One data was the PRHOs' espoused responsibility towards the patient which took priority over all other concerns. Interestingly the few studies that were found which explored 'risk' perception, rather than measuring it, also noted the importance of the subjects' feelings of responsibility (Lupton *et al.* 1995; Vahabi and Gastaldo 2003). It is difficult to state why this was a feature but perhaps it relates to Douglas and Wildavsky's (1983) explanation of 'risk' as a socially and culturally mediated phenomenon which draws on the similarity between 'sin' and 'risk'. The reason for risk and responsibility being associated may be that if something is labelled as 'a risk' it is because it has known consequences (as do sins). Placing others or oneself at risk is irresponsible (sinful) and as such should be prevented.

A series of papers by Mary Kendra relating to risk perception in health professionals was found after the analysis of the PRHO data was completed. These will now be described.

The paper 'Defining risk in home visiting' (Kendra and George 2001) whilst promoting a model called the Cognitive-Perceptual Model of Risk in Home Visiting (CPMRHV) described 'risks' affecting the health and well-being of the home worker. This equates to the 'risks to self' category in the PRHO study.

Some of the perceived risks of the Kendra and George paper reflect the American system (whether or not there was insurance coverage) and the potential danger to a health professional venturing out of a protected environment (clinics or hospital) into peoples' homes. These were understandably not described by the PRHOs, but many of the factors identified by Kendra and George did parallel the findings from the PRHO study: the importance of the individuals' personality in their responses to ambiguity and uncertainty; the role of previous experience; and the demands from the socio-cultural environment. The paper also described the importance of the client/patient in terms of the health worker knowing and understanding what was happening and having the support of others. What

Kendra and George suggested was that the environment, the client (patient) and the home worker himself were all influential to his perception of risk. The home worker was especially influential because all other factors were mediated through him. The finding from the PRHO study would concur with this conclusion.

Kendra and George generated a much more extensive list of mediating factors than I found in the PRHO study. How they did generate the factors described in this paper is far from clear but might, in part, have come from a 'pilot study' described in another paper. A survey published in 1996 by Kendra entitled 'Perceptions of risk by home health care administrators (HHCA) and field workers' used 30 risk factors from a pilot to find out which 'risks' were encountered during home visits, the perceived 'level' of these risks, as well as the support available whilst home visiting (Kendra 1996). In this large study of 794 people there were three professions which came under the title of field workers: registered nurses, licensed practical nurses and home health aids (HHA). These were drawn from a large geographical area that covered 25 American states and ultimately included a very diverse group with a wide range of qualifications, demographic details and work experiences. The PRHO group were certainly more homogeneous in nature than Kendra's sample.

In 2002 Kendra published a paper entitled 'Perceptions of risk by administrators and home health aids' (Kendra 2002) and although published a year later than the 2001 paper it might account for some of the other factors cited by Kendra and George as relevant in risk perception. The collected demographic details of age, gender, educational level and socio-economic status collected for the 1996 paper, appear to have been cross-tabulated with the perceived levels of risk for specified items for HHCAs and HHAs. Although this was not the function of the 2002 paper and no statistical analysis was given, this dubious calculation might have ensured that age, gender, educational level and socio-economic status were all cited as factors that affected risk perception in the 2001 paper.

What were arguably the most important similarities between McKendra and George's work

and the PRHO study, was the recognised need for what Kendra and George referred to as 'the evaluative dimension' (2001, p.132) where cognitive appraisal and perception allowed the practitioner in the workplace to attribute a level of risk to particular factors or situations. The most important difference was that Kendra and George seemed to view this evaluative process as a simple ranking procedure and the Cognitive-Perceptual Model 'a framework for defining and measuring perception of risk and level of risk experienced' (p.136). The findings from the PRHO study suggests that these reductionist methods are insufficient in capturing 'risk' perception and the evaluative and labelling processes used by clinicians in practice.

7.2.2 PRHO influences to this particular judgement call – answering the research question

The data demonstrated a number of influences on whether a PRHO asked for senior intervention. These are presented in the following taxonomy: the tenets underpinning the pre-registration year, the need to balance consequences, and the knowledge held within context. These map the groupings of influencing factors and their relationships. The works of other authors are used to gain further insight and understanding.

7.2.2.1 Tenets underpinning the pre-registration year

The analysis identified two tenets that a PRHO needed to uphold within practice and had to be seen to uphold - 'progress and develop' and 'be responsible'. These echoed the two perspectives identified by Becker *et al.* (1961) and two of Sinclair's dispositions (1997), 'Responsibility' and 'Experience', and reiterated the expectation that patient needs were to be given priority over the PRHO's own developmental needs.

There were elements of Sinclair's other dispositions, 'Economy' and 'Knowledge', in the PRHOs' descriptions but as these fit more appropriately into other sections of the taxonomy, they will be described later.

Whilst both Becker and Sinclair identified the importance of responsibility within medical

training and the value of experience, what was interesting in conceptualising the data from the PRHO study, was the potential for these to be in opposition with one another. The PRHO was required to be discerning about situations and to create a balance between their own needs and the needs of the patient. This placed elements of what Eraut (1994) described as 'control knowledge' (the knowledge needed to control and manage oneself) at the heart of this discernment and mediated all other forms of knowledge.

The tenets arguably support the pre-registration year as an arena for education and training ('progress and development') whilst recognising the impact this year has on service delivery ('being responsible'). But the potential incompatibility between the two justifies labelling 'whether or not to ask a senior to intervene' as a judgement call. If the PRHO did not need to progress and develop and only be responsible to the patient, he could contact his seniors continually. If his principle concern was his progression and development, patient safety could be compromised. In situations where it was clear that the patient was 'at risk' there was no judgement to make: contacting a senior would happen. When the PRHO's progression and development did not put the patient at risk (or at least the effects of the PRHO's activity had no lasting effects on the patient and the gains from doing the activity outweighed any discomfort to the patient) again no immediate contact was needed. There were, however, situations where the PRHO needed to balance these two tenets and come up with the best solution or reach a compromise between them: one which allowed them to act responsibly towards their patient whilst also developing their own skills and knowledge.

The existence of the tenets introduced values into their decision-making processes and alludes to the governing principles that underpin professional action. They added a fundamentally moral element that was needed to guide and control the novice practitioner as he attempted to gain enough experience to progress in his chosen profession without unacceptable costs to the general public.

There were consequences of having an organisational structure that had the dual

functions of training and service delivery, some of which explain the additional factors mediating a PRHO in asking for senior intervention.

7.2.2.2 Balancing consequences

The tenets state that the PRHO needed to take into account the well-being of the patient and his own learning and development. However, without help from others, the PRHO was unable to do so. As such, the PRHO relied upon the cooperation of others to support him.

Initially the PRHO relied upon the nurses quite heavily as they taught him the skills he needed to function in the early months of the pre-registration year. But after this time the nurses input was less significant because the skills and knowledge the PRHO then needed to learn were less generic and more specific to his own profession. The PRHO had outgrown the majority of nurses in terms of what they could teach him about *medical* care. Their need for 'progression and development' may explain the changing relationship that some PRHOs described with nurses. The PRHOs' agenda and hence their allegiance needed to be directed to those who allowed them to fulfil that tenet. Also, some PRHOs appeared to see it as problematic when relying on some nurses who wanted reciprocal 'favours' which were felt to compromise the PRHO's responsibility to the patient. Rather than living with this tension, the PRHO may have felt it was easier to have clear allegiances and nurses became 'others' and not 'one of us'.

The PRHOs' positive descriptions of medical training exemplified Lave's legitimate peripheral participation, with each grade of doctor having a meaningful and useful role within patient care and taking as much responsibility as befitted their clinical experience. The PRHO (and arguably all training grade doctors) was reliant upon input from his team as, without the team's co-operation, he would not be able to achieve either tenet. As such the team became an important influence on the PRHO's behaviour. What Phase Two data illustrated was that the PRHO not only needed to be responsible to the patient. Sustained input from seniors was neither practical (and challenged the notion of PRHO

development!) nor desirable for the following reasons. By not appreciating the impact constant requests for senior intervention had on the team, the PRHO was ultimately ignoring the collective needs of all the team's patients in favour of his own needs or the needs of the patient he was with at that time. Inevitably, by considering the wider implications of his actions the PRHO not only had a responsibility to the patient he was seeing, but also to those being seen by his fellow doctors and team. He needed to become more independent over time to reduce the considerable strain he put on those he depended on. The tenet 'progress and develop' was therefore not just about 'being responsible' to the patient but also 'being responsible' to the team.

These descriptions and consequences of having a team structure in medical training and practice relates well to Douglas's descriptions of a hierarchical institutional structure. It also explains the influential nature of the senior doctors and why the PRHOs in this study not only wanted to uphold the tenets but also needed to be seen to be doing so:

> '... anyone who lives in a community is monitored: the more close-knit, the more mutual monitoring'
>
> (Douglas and Wildavsky 1983, p.84).

The PRHOs knew that they were being monitored and that a senior would challenge the appropriateness of their actions in terms of patient care. But by upholding the systems that related to patient care, the PRHOs would, in Douglas's terms, enjoy the benefits of the hierarchical institutional structure – a sense of safety, being looked after, being anonymous in decision making. Applying Douglas's work to the pre-registration year also gives an explanation as to why some PRHO mistakes were tolerated, whilst other were not. Although making mistakes was arguably expected and accepted, if the action could be labelled by the senior as 'irresponsible', it became unacceptable – 'irresponsibility' was 'taboo', mistakes were not.

By not upholding the tenets the PRHO was letting down the team, his consultant and,

importantly in terms of power dynamics, his boss and the people he relied upon to help and facilitate him, to support, teach and protect him. There was therefore much to lose by not fulfilling what was expected of him. The PRHOs also knew that their actions would be discussed and judged. It was, therefore, not surprising that the overt demonstration of the tenets was viewed as desirable by the PRHOs. And perhaps the 'selfless' act of putting other people's needs before one's own physical needs (back safety and needle-stick precaution, not eating or drinking in favour of getting the job done) is further evidence that the PRHO needed to demonstrate commitment to the team, job and patients.

In any given situation the PRHOs were faced with negative and positive consequences to the patient, the team and to themselves from contacting /not contacting a senior. This supports Douglas and Wildavsky's (1983) argument that risk decisions are made on personal, moral, and political grounds. The identification of consequences to colleagues, patients, carers and other staff, as well as knowing how the decision would reflect on the individual making the referral, were captured as considerations in a study of general practitioners when they were deciding to refer patients for emergency admission (Dempsey and Bekker 2002). The GP study also described the emotional impact balancing opposing needs as well as how the crowded nature of the environment affected the GPs perceived efficacy. The findings by Dempsey and Bekker, although focused on much more experienced clinicians, parallel the findings of this PRHO study.

The PRHO needed to learn to balance the contra-demands whilst maintaining the tenets of the pre-registration year and at the same time be practical and keep others 'onside' to ensure co-operation when he needed it. The PRHO needed to select the most favourable outcome and/or an action that had the least negative effect or, if not known, the least negative potential consequence. It was these decisions that I saw as partly contributing to what Sinclair labelled as 'Economy'.

The above alludes to the knowledge needed to manage the consequences. It would appear that conceptual knowledge, knowledge of people as well as situational knowledge

(Eraut 1994) were all needed and utilised in calculating the consequences to the patient, self and team. It also required the PRHO to have some awareness of the policies of clinical practice as these gave boundaries to practice in knowing what was appropriate / not appropriate for him to do. 'Contacting a senior' was itself an important procedure that the PRHOs needed to adhere to but, as speculated in the initial review, this does not mean that the PRHO had significant 'knowledge of clinical practice' as defined by Eraut (knowing about policies and practices), only knowledge of what they needed to do. As with the tenets, it is speculated that control knowledge informed these deliberations.

7.2.2.3 Knowledge within contexts

Redelmeier *et al.* (2001) stated that clinical judgement draws on many components of a clinician's knowledge. The findings from this study would concur with that statement. To calculate the consequences of any action or inaction to the patient, team or self, or to just know them intuitively, the PRHO needed to be able to read and interpret the situation.

To be able to make judgements about the patients' condition, the PRHO needed to know the physiological ranges of normal for that individual. They also needed to understand the condition or patho-physiology to appreciate what was happening, what to look for and how these related to 'improvement', 'deterioration' or 'something sinister'. Knowledge of the condition appeared to have two functions when considering whether to contact a senior. Firstly, the knowledge gave the PRHO insight and understanding of the case and situation and therefore, the data to work out the severity or chance of consequences from contacting / not contacting a senior sooner rather than later. Secondly, it also generated data the PRHO could use in non-essential cases, to weigh-up whether, in that particular instance, with those particular players and set of circumstances, it was worth engaging a senior.

To get access to patient information, the PRHO needed to be able to examine the patient, read medical notes, extract relevant information from nurses' accounts and interpret and assimilate the information gained from these sources. If the PRHO needed to go back to

first principles and work out deductively what was happening, it was necessary for them to have time to collect information and work through the problem. But if there was little understanding of the presentation or no time to 'work it out' (or it was easier to contact the senior with negligible consequences from doing so), contact with the seniors would be made. Of course, greater effort was warranted for greater consequences and less effort made if the severity of consequences, or the chance of any consequences, seemed small. The PRHOs' descriptions of this deliberative assessment correlated with Eraut's (2000a) additional influences that he identified as affecting a practitioner's mode of cognition: context, availability of evidence, complexity and time available. PRHOs described being able to work out a problem or judge whether they needed a senior if these elements were available or favourable.

Knowing what one was being presented with, knowing what to do and having had similar experiences with successful outcomes, generated feelings of confidence with the case and allowed the PRHO to decide how sick the patient was and his ability to manage the case. The PRHO not only assessed whether he had the necessary knowledge or skill to continue without a senior but, perhaps more importantly, the PRHO assessed his ability to know whether he had enough knowledge or information to make these judgements. The more confident the PRHO was in his understanding, (and more so if this knowledge had been generated from successful clinical experiences) the less likely it was that the PRHO would contact his senior. This may explain the importance of confidence found in both Eraut's current work on learning (Eraut *et al.* 2004) and my own work (Stewart *et al.* 2000).

These data suggested that what was important in terms of action was the assuredness the PRHO had in the information held, its completeness and its accuracy; in his understanding of what that information meant within that context; in his ability to transfer this knowledge to the situation he was in and being cognisant of the consequences of being wrong in any one of these. The expression of this assuredness was through statements of confidence. What was crucial for practice was that the PRHOs were able to know their own abilities and limits within a context and these assessments correlated with a professional reality,

which in this instance, seniors arbitrated. Confidence allowed the PRHO within multiple contexts, facing multiple variables, to judge whether it was appropriate for him, with his knowledge and experience, to continue or whether he needed senior input.

As well as understanding the condition sufficiently to make judgements about his ability to manage it, the PRHO also needed some understanding of what he was expected to do in such instances.

In terms of knowledge, what is interesting to speculate on is the role of cultural, codified and personal knowledge.

Eraut has added 'cultural knowledge' to his codified and personal knowledge categories (Eraut *et al.* 2004). From his limited description, the term covers those practices and outcomes that are generated and culturally bound, implicitly developed and only tacitly held and gained from the social and cultural engagement that comes along with the job. It would appear from the data generated in this study that cultural knowledge informed these PRHOs on two levels. The first was through the adoption and overt demonstration of tenets, which arose from the values held within the education and training culture (and for medicine almost certainly an integral part of the practice culture). The second was from the rules and conventions that, in relation to the tenets, were much more mechanistic in nature. The rules were overt and espoused but although the conventions were described, their application in practice, were tacit.

Codified knowledge was initially crucial if the PRHO was to judge the patient's condition in relation to his examination findings. It also guided what data gathering activities needed to take place in order to generate useful information. Codified knowledge continued to be useful as it allowed the PRHO to evaluate his findings against known criteria ('what to expect with certain pathologies', 'normal ranges'). What was evident from the data was the personalisation of this codified knowledge which came with clinical experience and was no doubt used in preference to un-personalised codified knowledge. Personal knowledge,

unsurprisingly, was evident in all the knowledge categories and drawn upon to assess whether or not the situation needed senior intervention. It was also used in instances where the desirability, rather than the imperative of contact, needed to be weighed up. This notion of 'desirability' rather than 'need' may, along with the PRHO working through consequences, be another demonstration of Sinclair's disposition of 'Economy'. Here the PRHO included other peripheral considerations to his assessment of the situation; peripheral, that is, in terms of patient care and personal development. For example, how friendly and helpful the senior was known to be when you called them.

It is speculated that cultural knowledge may have acted as the main control mechanism on behaviour. Codified and personal knowledge informed the PRHO but was being culturally mediated or framed, and action was determined by this framing process.

In considering further Sinclair's dispositions (1997) against the taxonomy generated from the PRHO data, it is speculated that these have different positions within it. 'Responsibility' and (gaining) 'Experience' reflect the values of the profession and as such underpin all action. 'Professional idealism' (wanting to be a safe and competent doctor) may be a manifestation of these values within the clinical context and may again reflect the tenets identified in the PRHO data. Whilst 'Knowledge' was viewed by Sinclair as being secondary to 'Experience' in clinical practice, it is my belief that valuing 'experience' actually represents the recognised importance of personal knowledge (gained from his experience of the job) over codified knowledge. It is also suggested that 'Economy' may be relevant at different levels; in the calculation of consequences to the patient, team or self, from those features that made contacting a senior more desirable and, in simply knowing what to do and when.

The data suggested that trainees learned and implemented the preferred working practices of the attending senior which ultimately (because of the hierarchical structure) reflected the preferences of the consultant. This challenges the applicability of the concept of 'collective knowledge' described by Boreham (2000) when it is ascribed to training

teams or firms of doctors. Each member of the team does bring specific knowledge to a situation (in terms of the new PRHO this probably is better labelled as information). However, rather than the firm working together to create a combined knowledge, within this structure (unlike in 'real teams'), each member of the firm contributes to patient care but each senior could, if needed, do the job of those junior to him. One could imagine, however, some seniors being concerned about their own level of skill in performing some routine procedures that they themselves might not have done since their house officer days!

Eraut *et al.* (2004) recently presented a 'Progressive Typology' which depicted what was learned in the workplace by those early in their careers. As Eraut's research focus has moved from knowledge to learning, caution needs to be applied when relating the findings to the PRHO study. There were fifty-three items listed under the eight headings. What was noticeable about the list was how many activities were actually skills and knowledge that were needed in recognising the need and in assessing and actioning the process of gaining senior assistance as described by the PRHOs. For example, under the heading of 'Personal Development' are items such as self-evaluation, self-management, handling emotions, building and sustaining relationships, disposition to attend to other perspectives, disposition to consult and work with others, disposition to learn and improve one's practice, accessing relevant knowledge and expertise and ability to learn from experience. This supports the significance and complexity of the often taken for granted act of knowing when to gain senior assistance. This most fundamental activity might even help develop those skills and knowledge needed to function in practice generally. These ideas are discussed further in 7.3.4 under the heading 'The nature of clinical judgement'.

7.3 The key findings and addressing the study aim

The previous section alluded to several key findings. These were: the nature of risk as the term is applied within the clinical context; the importance of the interaction between social and individual factors; the positive role of the hierarchical team within this interaction as well as its negative consequences; and finally speculation on the nature of clinical

judgement. These key findings are now discussed.

7.3.1 The nature of risk within the practice context

The literature review explored the different perspectives taken by various disciplines on 'risk' and illustrated how the researcher's theoretical stance inevitably influenced what was found in a study: To take a socio-cultural perspective would have led to gathering socio-cultural influences. Viewing 'risk' as a product of an individual's cognition would have led to gathering data related to that phenomenon. The results from this study supported my decision not to take a predetermined position on 'risk' and ultimately illustrated that taking a single perspective was unhelpful when studying 'risk' as it related to clinical practice. What was exposed was not the intellectualised, rational, technico-scientific approach to 'risk' referred to in the medical literature, but accounts that were contextual, rich and variant.

The study identified the multiple factors that these clinicians drew upon, used and were affected by. For example, the data from the study showed that 'a doctor' brings multiple representations to the concept of 'risk'; 'the doctor' as an individual with a personality, a past, an upbringing, preferred ways of thinking, analysing and acting and with personal expectations as to how he should act in a professional capacity; the 'doctor' as a member of a team and therefore with a need to work collaboratively and considerately and the effect that had on how 'risk' was interpreted and acted upon; the 'doctor' as a member of an organisation and profession where there were known and perceived restrictions and sanctions and rules of etiquette which influenced and guided responses.

The complexity of multiple individuals, multiple teams with multiple professional agendas, all working within an organisation and all having their own representations of 'risk' explains why strategies for instigating change in clinical practice can never be as straightforward as some policy makers may wish. I would also suggest that this situation is further complicated by the concept of 'risk' existing and impacting on clinical work via the academic context, the organisational context and the practice context. Although there are

similarities across these 'risk' contexts, they cannot be considered the same. The academic focuses on models and theories necessitating the application of specific rules, formulae and precise calculations. The organisational, like the academic, is concerned with ideal states and rules but manifests itself in the form of guidelines and policies. It is more pragmatic than the academic whilst still being underpinned by specific strategies that are applied generally. Both imply 'risk' is a singular definable problem. For the practice context, the term 'risk' is an imprecise concept but it is argued that its apparent nebulousness and changeability actually captures 'risk' as it perceived within this context: the multiple hazards, threats and uncertainties and the potential for negative consequences from any action that the clinician faces in his work.

What this study has clearly illustrated is that although the patient's condition was important in the PRHOs' assessment and management of a situation, it was not the only variable for him to consider; professional etiquette, social conventions in training and organisational structures also need to be taken into account. In clinical work, PRHO actions were the product of individuals working within a social world which inevitably had cultural imperatives, underpinned by individual and collective knowledge. These all had a role in mediating their interpretation of specific situations as a 'risk'. Therefore, in describing the clinical context, as it was experienced by the PRHOs, and specifically with regard to 'risk', it is unsurprising that practitioners have problems when trying to incorporate models or edicts generated from the other contexts (academic or organisational) into their working lives. For the PRHO, evidence based medicine, 'risk' guidelines or protocols that only covered 'the patient' must have had limited usefulness in helping them manage the very real problems and 'risks' of practice. This raises the question as to how any set procedure could ever address the complexity that characterises the practice context.

The team, or more accurately 'the firm', were extremely consequential in shaping the PRHOs' actions and it is argued that, as such, the 'risks' that mattered to PRHOs were shaped and guided by the values of senior colleagues. These took precedence over other concerns such as hospital procedures or rules on safety, especially if these were different

to those of their team. It is suggested that what was valued by doctors was getting the job done as safely and efficiently as possible. These values were no doubt held by other stakeholders but what might be true is that 'safely' and 'efficiently' may be interpreted differently by different professional groups. For example, nurses were reported as taking time to report accidents, needle-stick injuries and to visit occupational health. The PRHOs rarely did.

An important judgement for the PRHO was recognising and weighing up, amongst a myriad of 'risks', those that had clinical relevance. Clinically, 'risk' covers too many things for every single one to be attended to and, as a consequence, 'risks' *per se* only became relevant in a particular situation or if in the presence of other factors. Prescribed rules on 'what to do' did not fit every situation or every patient but, more importantly, 'what to do', was not what this was about. The PRHO had clear guidance on what to do when they perceived they could not manage. What was complex and difficult was how to interpret that collection of 'risks' and see one situation as clinically significant whilst others were not. It was the conceptualisation of the situation as problematic that required the clinical effort. Labelling a situation in this way was important because it then became something the PRHO knew that he must attend to; the issue of problem-setting therefore becomes central to 'risk' as a clinical phenomenon. It is somewhat paradoxical that Schon's significantly flawed notions of reflective practice (1983) are so pervasive throughout clinical training but his comments on problem-setting appear to have been forgotten.

The lack of conceptual frameworks used for interpreting clinical practice and the limited range of research perspectives routinely employed to study it, has created within medicine some unsophisticated perspectives on the nature of practice. It is hoped that this study, by focusing on the common term of 'risk', has illustrated the complexity of the practice context and how it cannot be assumed to mirror 'risk' as it is perceived in the academic or organisational context.

7.3.2 The interaction between social and individual factors

Throughout the data there was evidence of a dynamic between the individual PRHO and the social /cultural imperatives of the profession. This suggested a relationship between the socio-cultural and cognitive perspectives which, although described separately in the literature, were not explained in terms of their relationship to one another. The complexity of this relationship is illustrated in the following example: The seniors were reported as being unable to tell a PRHO to do a procedure if the PRHO did not feel he could do it. As an individual, the PRHO needed to decide whether it was appropriate in that instance, with his level of experience and/or knowledge to undertake an activity within that context. The PRHO was the only person who knew 'what he knew'. His insight into his cautious nature or propensity to impetuousness (or problematically the lack of insight) might also have influenced how he assessed his feelings towards a preferred action. Conversely, the seniors knew what the PRHO ought to be doing at that stage in his development. The PRHOs knew that the seniors would be judging them on the appropriateness of their decision to do or not do what was being asked of them and also on their cooperative behaviour as a team member. Being perceived as uncooperative would impact unfavourably on their working lives.

This meant that the individual needed to read and interpret a situation and judge (not necessarily explicitly) what was important about it, what needed to be attended to, what were perceived to be the potential consequences of action and inaction and how tolerable/not tolerable these consequences were within that situation. These judgements were made by the individual but learned through previous encounters and experiences when he or someone else either 'got it right' or 'got it wrong' and what the important and the less important consequences were in that instance. The notions of 'right', 'wrong' and 'important', 'less important' are illustrative of the influence of socio-cultural or professional constructions on the individual.

The findings from this study explain the interplay between an individual's decision making and the socio-cultural factors in clinical practice and how these could not be thought of as

independent of one another because one mediated the other (Figure 11). It is also argued that it was this dynamic that facilitated the dual roles of training and service delivery and allowed them to be conducted alongside one another without one having a detrimental effect upon the other.

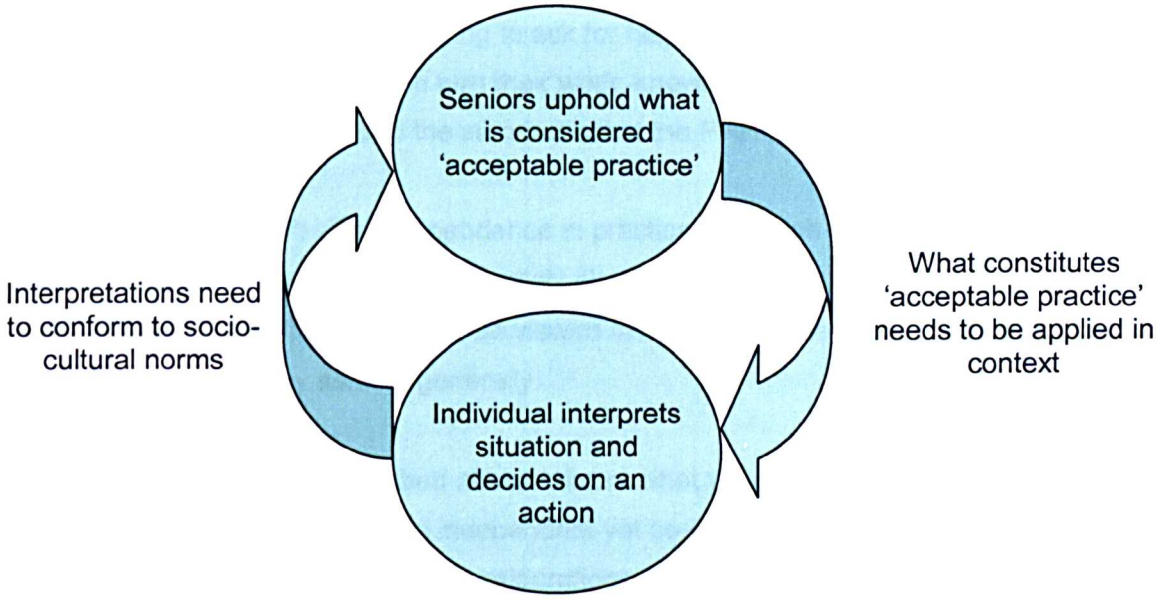


Figure 11 – Interplay between individual and socio-cultural factors

Socio-cultural influences such as the rules, conventions, the values espoused and enforced by seniors in practice were central in guiding the PRHO about 'what was the right thing to do' as well as controlling aberrant behaviour. The PRHO would only be allowed to work independently if he demonstrated to his team that he was upholding these in his work and could be trusted to act 'appropriately'. Being trusted to work independently was important because the individual could then learn from his own experiences about interpreting situations and making judgements. It also had a positive effect on his self-esteem and confidence. The employment of 'controlled' freedom, with sanctions for those who digressed, gave the novice practitioner a level of independence whilst putting into

place safety mechanisms for patients whose care was being delivered by trainees.

The dynamic explains why establishing relationships with seniors was so important to many of the PRHOs. The often implicit nature of these socio-cultural factors ensured that there would be variations of what was meant by 'good' or 'acceptable', as well as the existence of context specific norms. It is speculated that knowing their seniors well was not only more comfortable when needing to ask for help or advice etc. but it also gave boundaries to such terms and in turn their work: knowing what the senior expected, his preferred ways of working and the standards that the PRHO needed to work to.

Along with this the PRHO's independence in practice (although more potential than real) allowed him as a practitioner to legitimately challenge any unrealistic or perceived unsafe request from others. This might not be viewed favourably by the individual's senior but would be supported by seniors generally.

The complex interplays described above mirrors what were perceived to be essential attributes for clinical practice: an independent yet co-operative and discerning practitioner who was able to balance multiple considerations whilst ensuring patient care. It appeared that the PRHOs were practising with their seniors what they needed to become.

This approach to professional training did require, however, that a 'poor' team had at least to be matched with a 'good' PRHO, or a 'poor' PRHO matched with a 'good' team. The combination of a maverick PRHO and weak team structure had the potential for poor, ineffective training but more problematically, a disastrous combination in terms of patient safety.

It is also argued that a consequence of this powerfully interrelated system has been that the controls on practice have traditionally been a team concern and 'issues' that have arisen have been dealt with in-house and order maintained by the close community bonds. Team problems have been dealt with by the team. Training issues have been dealt with by

the team (the team's need to have functioning and effective workers ensured juniors were trained). Discipline issues (if not too significant) have been dealt with by the team. The current drive for taking 'problems' out of the community or 'whistle-blowing' must be challenging for doctors when it represents a very different approach from the one they have experienced and been socialised into, especially when the identified 'problems' may be defined and conceptualised differently within the clinical context.

In the final section (7.4) the implications of the changes brought about by recent developments to the pre-registration year will be considered in relation to the dynamic between socio-cultural and individual factors.

7.3.3 The challenges of the hierarchical structure

The findings from this PRHO study suggest that the maintenance of the dynamic between socio-cultural factors and the individual was upheld by a team approach to training and care and the hierarchical structure of medicine essential for maintaining patient safety and facilitating PRHO development. As Douglas and Wildavsky (1983) suggested it would, the hierarchical structure gave the compliant novice a protected environment in which to work and learn. The hierarchical team structure had, however, several implications and consequences to it which were evident throughout the PRHO data but not a focus in Douglas and Wildavsky's writing. This may be because Douglas and Wildavsky did not explore the challenges of working within a hierarchical structure or what happens when hierarchical units occasionally have to work 'together'.

Making judgements and being judged were crucial for ensuring independence of the individual as well as their interdependence within the team. These characteristics, however, could equally create an environment which was overtly critical, back-biting and bitchy. Knowing that one's decisions were being monitored and discussed could also make for an uncomfortable learning environment. For example, one of the PRHOs in Phase One experienced relentless monitoring from a very senior nurse who then reported back minor 'slips' to the PRHO's consultant. Rather than seeing mistakes as something

one learned from, the PRHO felt that every move was being used to judge him as incompetent. The PRHO feared that the nurse's accounts would make the consultant view him poorly as a clinician and that this might ultimately affect progression. It made for a miserable PRHO posting.

The hierarchical structure that secured reliance on seniors, and the understandable reverence given to experience, ensured that challenging one's seniors often equated to being disrespectful of one's betters. This inevitably made challenging a senior difficult for a junior and an action that was perceived to have negative consequences. Unsurprisingly, it was something that the PRHOs were likely to try to avoid. The PRHO's responsibility to the patient (also a powerful motivator) may have, in some instances, made challenge acceptable but I suspect that this would only be considered an option by a minority of PRHOs. The difficulties the PRHOs faced in such a situation cannot be overstated, and presented the unfortunate individual with challenges that he could perceive as affecting his training and day-to-day working life. It is suggested that this might not only be true for PRHOs but for any training grade doctor. Boreham *et al.* (2000) noted issues for SHOs in hospital emergency departments where the established 'division of labour' (p.89) and acquiescing to greater experience, over-rode personal clinical judgement.

Engaging a senior's help when it was perceived to be needed was a core activity in a system which allowed a junior to work independently for as long as it was safe to do so. However, in order for it to work, the following needed to occur:

- A PRHO needed to have accurate insight into their skills and knowledge levels;
- When recognising the need a PRHO contacted a senior;
- A senior member of staff came when called;
- The senior brought more knowledge to a situation.

The data demonstrated contrary descriptions: PRHOs did not always contact a senior when there was justification; the senior member of staff did not always come if a request was made; seniors were not always better informed than their juniors; and PRHOs

described other PRHOs who were more confident than they ought to be with the skills that they possessed and others who were less confident than their skills warranted. Although each element was necessary for this important safety structure, interestingly, there were no formal mechanisms to ensure that these were upheld or that necessary skills were in place.

The reliance upon the hierarchical team structure could also be problematic when the PRHO needed to work outside of the team, or his team was unavailable. PRHOs also described having difficulty gaining cooperation from pharmacists and radiology departments as well as from other firms or departments. Problems with the team structure were more evident in surgical jobs than in medicine. The location of surgical seniors during the day made them less spontaneously available of course, but problems also arose because the skills the PRHO needed to function on the ward were not the skills of a surgeon. For this reason, their seniors were sometimes of little practical help to the PRHO, although often reported as supportive. The PRHOs' descriptions suggested that they managed by being adaptive and creating relationships with people (specifically peers and senior nurses) who were available to support or train them.

'Tribalism' is a pejorative term that has been used to describe teams/firms of doctors (Smith 1999; Jones 2000). It is argued here that working in teams (or tribes) was principally functional for the PRHO. The PRHO needed someone to take responsibility for them and from them, and this someone had to have some status within the hospital environment. Status was something the PRHO certainly did not possess. For the small amounts of time that the PRHO was actually reliant on others out of his team, the benefits of the hierarchical structure were greater than its deficits. This is not to underplay the very real distress and difficulty the PRHOs experienced whilst working without team support. Territorial behaviour was evident in the PRHOs' stories, but it is suggested that the PRHOs survived these because they had on their side, a tribe of their own.

It is suggested that the hierarchical structure was not, in fact, problematic *per se* but

dysfunctional teams or members of teams created problems and there was the potential for problems to arise from cross-team working, or more accurately, from the lack of cross-team collaboration. For example, members of a team 'not coming' when called, or other teams or firms refusing to help a PRHO who was not part of their team because to do so would mean taking responsibility for that patient.

Despite the obvious weaknesses and challenges of working within a hierarchical structure, I would argue that its value outweighs its problems. It would appear more useful to develop ways of managing its potential weaknesses and abuses of it, rather than viewing it as primitive (tribal) and compromising. The place of the team and the potential implications of the changes from current initiatives will be discussed in the final section (7.4).

7.3.4 The nature of judgement within a clinical setting

This study began from a desire to understand what it was that made a clinician pay attention to some situations but not others and what was it that made some situations 'risky' and others not. These questions came to be understood as focusing on clinical judgement, albeit a specific form.

The findings from the study gave insight into the nature of risk as it was applied by PRHOs to the clinical context, the importance and consequences of the hierarchical structure utilised in postgraduate training of doctors, as well as the complex interaction between social and individual mediators. Phase Two specifically focused on the factors PRHOs described as influencing their contact with a senior. By the end of the analysis, this particular judgement came to be viewed as crucial for efficacy and efficiency in the profession's particular approach to training, whilst maintaining patient safety. Although care needs to be taken when transferring the analysis from an interpretivist study on one particular judgement to general statements about a phenomenon, all of the above have given some insight into the nature of judgement within a clinical setting.

Reading some clinical literature would suggest that judgements are synonymous with

decisions (for example, Killen *et al.* 1997; Botti and Reeve 2003; Salantera *et al.* 2003; Manias *et al.* 2004). I would suggest differentiating between these terms is useful for conceptual clarity. 'Decisions' are actually about an end-point or outcome and 'decision-making' is concerned with the processes of reaching that end-point or outcome. 'Judgements' are specifically concerned with deliberation and/or discernment between the multiple factors that a clinician needs to take into account in the decision-making process. Therefore decision-making might include judgement, but judgement is only one particular activity within decision-making.

Decision-making is often portrayed as rational and linear, with the potential to be diagrammatically represented by a decision-tree structure (for example, see Evans 1993). The PRHO study refutes the applicability of this conceptualisation to judgement and offers this alternative: clinical judgement as a dynamic, complex process which, if described diagrammatically, would be much more akin to a heavily ornate mobile with interconnections between elements and exemplified by the need to create stability through counterbalances. Judgement is most certainly a constantly shifting, non-linear process because although the situations clinicians face may be similar, importantly they are never exactly the same - hence the need for judgement. This conceptualisation of judgement may justify why it is described as the 'art' rather than the 'science' of the decision-making process (Cronje and Fullan 2003).

The data from the PRHO study illustrated the multiplicity of factors that these junior clinicians needed to take into account. Collectively the factors produced a complex matrix of hazards, threats, losses and benefits to which the PRHOs needed to weigh up the consequences from any single act. The data also suggests strongly that judgement draws not just on the PRHO's knowledge about conditions and patients but also the upholding of values and codes of conduct that are expected of the profession. This is in line with Dowie and MacNaughton (2000) who described clinical judgement as drawing from what they term technical judgement as well as humane judgement.

Whilst Redelmeier *et al.* argued that 'judgement is a complement to but not a substitute for knowledge' (2001, p.360), I conceptualised the interaction between knowledge and judgement differently. Redelmeier *et al.* appeared to be using the term 'judgement' as a synonym for guess-work, but the PRHO study would suggest that judgement was essentially the act of deliberating and evaluating knowledge and necessarily encapsulates the practitioner's assuredness in that knowledge when applied in a specific context. If the above is applicable to more general situations, it may explain why 'evidence' is not always utilised in practice. For example, although the findings from a drug trial could be known to a practitioner, his conviction in the value of that evidence and how applicable it was perceived to be in a particular situation may be precursors to it even entering his deliberations. The importance of discernment as a core quality of the medical practitioner is unlikely to be by-passed just because the data were generated from a randomised controlled trial.

As described in the literature chapter, Fish and Coles (1998) illustrated different types of judgements by the questions a clinician may ask himself. The insights gained from this PRHO study could give further clarification to these questions. 'What do I do now?' (representing intuitive judgement) exemplifies a situation where the clinician perceives no consequences that need to be taken into account or balanced and therefore, the practitioner only needs to 'weigh-up' and select between known strategies. Perhaps this is why it is intuitive, as the balancing of complex and multiple variables is unnecessary. 'What might I do now?' (strategic judgement) suggests the need to decide what options are available. Unsurprisingly this requires more conscious engagement but the options are those that are still within the clinician's know-how. What characterises both of these questions in relation to the model generated from this study, is that they appear to be drawn from knowledge held within context and therefore are 'simply' a matter of selecting between the known options. What is interesting about the other of Fish and Cole's questions is the potential for them to reflect engagement by the practitioner with other factors identified in this study. 'What could I do now?' (reflective judgement) may suggest an engagement with consequences, 'What ought I to do now?' (deliberative judgement)

implies an engagement with values.

If this is an accurate analysis, it would suggest that intuitive judgements work only at a level of knowledge held in context and, as such, can be executed by the clinician with little to no challenge. When however, there are competing consequences or abstract considerations such as values, unsurprisingly this require the clinician to be more considered in his deliberations.

Some medical literature does present ways of viewing judgement in medical practice which relate well to the findings described in this thesis.

Drawing on the models of Harold Brown and of Jürgen Habermas, Cronje and Fullan (2003) describe an alternative to the classical model of rationality where the strength of judgement comes from a collective sense of 'right' and its validity from the support it gains from others (intersubjective validation). This would seem the appropriate and perhaps only means by which 'right' can be assessed in complex situations such as clinical work, where a collective sense of 'right' is necessary because rules *per se* cease to be meaningful as they cannot be applicable to, or upheld in, every situation. What I believe occurs is that clinician's draw upon their sense of what is right and a sense of the proper way to act in 'that' particular instance. For the PRHO this sense of right was validated principally by his seniors.

Cronje and Fullam also describe how once 'a decision' is made it must also be adaptable to new information (dynamicism). Although it is appreciated that new information does feed into, and potentially alters, a PRHO's action, the theory presented in this thesis does not capture this. The explanation of why new information does not appear as a separate entity is because this study is about judgement rather than decision-making. In a theory of judgement, knowledge exists as a factor to be taken into account in one's deliberations. A theory of decision-making would show how new information alters old information. This aspect of Cronje and Fullam's paper does, however, reinforce the active nature of these

processes and indicates that knowledge itself shifts not just from patient to patient or situation to situation but also from one moment to the next. To apply this to the PRHO study, the PRHO may read the results from the laboratory investigations and, in an instant, their knowledge of the situation alters, or the consequences alter, or the importance of the tenets as they apply to that situation, shifts.

The other two components described in Cronje and Fullam's paper are more difficult to relate to the findings of the PRHO study and reflect these authors' pursuit of an approach for validating evidence-based findings rather than an account of judgement and explanation of how practice is conducted. They describe the very real problems associated with relying solely on social validation for corroboration and the need to deal with these problems by ensuring 'freedom from coercion' and by the 'inclusion of stakeholders'.

Certainly, in terms of judgement as it relates to the described PRHOs' practice, these do not correspond to how it functions and neither is this correspondence likely. PRHOs' practice is dependent upon their relationships with others and therefore coercion is always likely and the inclusion of all stakeholders too time-consuming to ever be a reality. In practice, clinical experience will be the most important discriminator in who is listened to and whose judgement is valued.

White and Stancombe (2003) see professional judgement as a product of both the individual and of social processes but with less attention given to the socio-cultural perspective than the cognitive. They argue that 'science, language, social interaction, history, emotion and moral judgement are important contextual elements in clinical judgement' (p.146). The PRHO study supports their argument. What was found in the PRHO study was that codified, personal and cultural knowledge, the PRHO's personal and clinical history and experience, the PRHO's relationships with others, and the values that he wanted and needed to uphold in practice, were all elements affecting this particular PRHO judgement.

Plsek and Greenhalgh (2001) describe 'complex adaptive systems' which they suggest should be used to help reframe health care and this related closely to the PRHOs' descriptions of practice. These authors explain concepts such as fuzzy boundaries, internalised rules, adaptive behaviour and systems, co-dependency and co-effect from multiple systems where there are inevitably tensions, inconsistencies and contradictions. As Plsek and Greenhalgh state, this environment requires the practitioner to be adaptive to change but equally needs what is happening to be recognisable and within the boundaries of what they know to be practice. This captures the PRHOs' descriptions of practice and, for me, conceptualises from where management strategies need to start. Policy, guidelines, protocols and risk management approaches which are appreciative of the complexity of practice may be less likely to be an adjunct to it or imposed upon it.

While the PRHO study was being conducted, Eraut *et al.* (2004) started a longitudinal study into 'Early Career Learning at Work' funded by the Teaching and Learning Research Programme. Although my thesis is not concerned with learning, the studies do have some common ground because each focuses on professionals at the start of their working careers.

Eraut and his team established early on in the research 'a progression typology' of what was being learned in the workplace based on the findings from post-graduate nurses, engineers and accountants. The work identified eight areas of learning: 1. task performance, 2. role performance, 3. awareness and understanding, 4. academic knowledge and skills, 5. personal development, 6. teamwork, 7. decision making and problem-solving and, lastly, 8. judgement. Findings from the PRHO study would support the assertion of Eraut *et al.* that these groupings were not mutually exclusive.

The finding from the PRHO study challenges the suitability in this typology of placing 'seeking help' under the heading of 'Decision Making and Problem-solving'. In line with Schon's assertions (1983), 'when to seek expert help' is not just about problem-solving but crucially is one of problem-setting, and Eraut's categorisation therefore only explains half

of the process. It is interesting to note that in Eraut's Progressive Typology, the importance of problem-setting, although it is inherent within many of the categories, remains implicit ('contexts and situations' is mentioned under the heading of 'Awareness and Understanding'), whilst problem-solving is explicitly stated.

I would argue that rather than being separated as they are within the Progressive Typology, 'judgement' is an important part of 'decision making' within clinical practice. It is however recognised that decisions can be made without judgement!

What Eraut *et al.* may be suggesting when they place 'levels of risk' under 'judgement', is that judgement is about ascertaining and discerning conceptual levels. This would fit with the other activities placed under 'judgement' including 'quality of performance', 'output and outcomes', 'priorities and value issues' and corresponds to the description of judgement given at the beginning of this section. Perhaps he and his team view 'decision making and problem-solving' as the overt, rational, deliberative processing of data described previously and consequently this may be why 'problem analysis' and 'generating, formulating and evaluating options' come under this heading. Whilst Eraut and his team view decision-making and problem-solving as the same process, I would not. For me, problem solving, like judgement, is a process used in decision making but equally can be an activity in itself. Problems can be solved without decisions being made.

Where I would agree with Eraut *et al.* is that 'levels of risk' is most certainly a 'judgement'.

7.3.5 Concluding comments on the key findings

Contrary to the medical literature, the findings from this PRHO study support the conception of 'risk' as a value judgement. The 'risks' described by the PRHOs represent the very real hazards, threats and uncertainties of clinical work but also the values of the individual and those of the medical profession. This conception of risk is in line with what Lupton would refer to as a weak constructionist perspective (1999).

Evident within the data was the interplay between the practitioner as an individual and the socio-cultural imperatives and controls of professional practice. What became an important insight is that the delivery of medical care in a training setting needs to be a co-operative act between all practitioners and, as such, clinical judgements are unlikely ever to take into account only the needs of the patient.

The applicability of Mary Douglas' work to medicine was helpful, specifically viewing the training structure as a hierarchical institution and noting the functionality of these structures in maintaining patient safety whilst gaining experience. It was clear that seniors were of central importance for productive, safe working. It is suggested that the PRHO developed his judgement about when to contact a senior from having had multiple experiences in multiple contexts and from these gained a sense of what was appropriate to view as problematic in that instance. As the PRHO attempted to balance competing values and take into account multiple variables, he learned to finely tune his decision-making skills including judgement and come up with solutions that were perceived 'best' for that situation, within that culture. Feedback from others appeared to play a crucial role in gaining this sense but it is also felt that it required time, exposure and probably some stability of variables to reach a level where all the vagaries of practice could be successfully managed. What was clear from the PRHO data, but unsurprisingly not evident in Douglas' writing, was what stopped the hierarchical structure from being a functional structure.

It is argued that initiatives and guidelines for training and safe practice need to appreciate and bear in mind what actually motivates action in clinical practice. The PRHO's professional world is actually quite small, with his team central to his well being and consequently represents to him 'what matters'. Also for a novice, the crowded contexts need to be contained and managed, otherwise they become overwhelming. It is not surprising therefore that the PRHO will focus on what the team see as important. It may mean that organisational procedures and guidelines are ignored in favour of other demands that are perceived as being more important.

There is much discussion in the literature about cooperation between the patient and the doctor, and the field of risk communication is testament to this statement. I would suggest that for medicine, this is only one of many allegiances that need to be fostered and although the current trend is towards multi-professional working, intra-professional working could usefully be explored and developed.

Whilst Schon would no doubt have suggested that problem-setting in novices would be improved through some overt 'reflective' process, I believe that learning problem-setting for these PRHOs may have happened through less prescriptive means, and that 'talking seniors' actually gave these learners insight into different frames. Rather than 'teaching' these frames, the seniors gave the juniors insight via the hundreds of times the PRHO heard from the senior about how he viewed particular situations and what he was taking into account in his actions. From this, the PRHO heard similar problems in different contexts from multiple perspectives, and perhaps it was these that gave him a sense of what was situationally right or wrong. It might be that experience, although important, required some external validation such as an outcome (death or recovery of a patient, a senior demonstrating their approval or disapproval) to usefully turn an incident into a meaningful experiences and one that helped develop personal propositions and, ultimately, clinical judgement.

The next section will consider how new directives in both working and training may affect the current status quo and the implications this may have for training, learning and safe practice.

7.4 The potential impact from current initiatives

Since this study began in 2000, certain events have impacted on the pre-registration year. Arguably the most significant has come from the European Working Time Directive which has necessitated a re-think of postgraduate medical training.

The European Working Time Directive (WTD), implemented from August 2004, reduced

junior doctors' hours to no more than 58 hours per week and introduced compulsory rest periods and breaks. Financial penalties were imposed on any Trust not fulfilling these requirements. The 58 hour maximum will be reduced again to 56 from August 2007, and to 48 hours from August 2009 (BMA 2004). Clinically this equates to a large number of doctor hours being lost to the National Health Service and a noteworthy reduction in the contact a junior doctor has with the clinical context. Even the 58 hour working week was reported as representing a 10% loss of trainee contact hours (Burke 2004). If this is an accurate assessment, from August 2009, clinical contact for junior doctors will have been reduced by around 25% from when this study was conducted.

Such a significant cut in working hours means that the training of junior doctors could not continue as before. This, coupled with the damaging headlines of the last few years from Alder Hay, Bristol Royal Infirmary, Rodney Ledward and Harold Shipman, ensured that medicine needed to change and be seen to change. It is now under more scrutiny and challenges to its work practices, including how it conducts its training, accredits its doctors and monitors its members' practice (Walshe and Higgins 2002).

In 'Unfinished Business – consultation document' (DoH 2002), Sir Liam Donaldson set out a plan for change. The first two years after graduation would consist of an integrated and planned general training to be known as the Foundation Programme. The PRHOs would become known as F1 doctors and first year SHOs as F2 doctors.

Modernising Medical Careers (MMC) was launched in February 2003 and implemented from August 2005. It is said to mark 'a shift in postgraduate medical education from apprentice-style training' (DoH 2005, p.8). This will be done through quality assured training programmes that are compatible with the demands of the WTD. The programmes are to be outcome-based, with defined competences, specified assessments and must demonstrate the development of the trainee doctor over the two years. The adoption of such a curriculum model is inevitable and probably driven as much by a political as an educational agenda.

> *(Describing the function of a outcome-based curriculum)* 'These purposes include justification of what an institution is doing, indication that 'management' is in control, information to the public and an attempt at institutional coherence.'
>
> (Talbot 2004, p.591)

In line with the model adopted, the most significant change is the introduction of standardised assessment procedures. These are described in appendix N.

In the proposed system, the Foundation doctor takes responsibility for the management of his education and the collection of assessment data and for demonstrating that he is competent to progress. This suggests a commitment to an approach which puts the student at the centre of his learning but it also has a pragmatic function; there is no-one with time to perform this task for him. To help the Foundation 1 doctor in their development, he has an educational coach / supervisor and a clinical supervisor. As the names suggest, the educational supervisor has responsibility for guiding the tutee through the educational process whilst the clinical supervisor has responsibility for the Foundation doctor at work.

7.4.1 The functionality of the process

The new approach to the pre-registration year makes a statement about how the profession wishes this year of training to be viewed. That is, as a structured educational experience, where the ability of the junior doctor to practice, is routinely assessed.

The assessments cover a range of skills which represent the complexity of the clinical job. These take place, as much as possible, within the real world of practice, even though it would have been easier to ensure rigour (specifically reliability) if OSCEs or OSPEs or written examinations had been adopted. The assessments mirror the Foundation doctor's work and are therefore more likely to capture the F1 doctor's ability to perform in the clinical context. There is greater emphasis on explaining decisions, providing rationales

and exploring the junior clinician's conceptual understanding of clinical situations. It is suggested that these should all be considered as positive developments.

What is also potentially positive is the way in which the Foundation doctor receives continuous feedback on how he is progressing. Only tentative support is given here because it is questionable as to how much engagement a trainee and assessor can usefully have when less than five minutes has been assigned to this activity. This is a particularly short period of time when the expectation is that they will also identify and agree strengths and areas for development, as well as the action plan for addressing deficits.

Arguably the greatest strength of this system is that it will ensure that every trainee doctor has a body of data that maps his progression and experience. It is, however, reliant upon the quality of the data captured.

Although the Foundation doctor must use different assessors and focus on different aspects of the curriculum, in each instance he chooses the assessors and the assessed event. If the assessments count towards evidence of ability, it is highly likely that he will select cases that are not too challenging and assessors who are likely to give a good report. By leaving these decisions to the trainee it may also challenge the formative function of the assessments. For example, it is thought unlikely that 'un-doctored' reflections by the Foundation doctor will be presented to a senior when the F1 doctor knows that these accounts will be used for assessment purposes, and when he knows that the senior will be judging them on how well they conform to accepted behaviours. The above pressures could result in ritualised performance or game-playing where the junior adopts behaviours that will ensure his success. As such, the assessments have the potential only to capture and record the sanitised opinions of certain individuals about carefully selected activities. Perhaps negotiating with one's educational or clinical supervisor about the selection process may help address this issue.

It is also of some concern that the assessment process will not be integrated into practice but become another adjunct to it, another hoop to go through and collecting 'the forms' may become more important than the developmental testing process. It is suggested that the culture captured by the PRHO study will mean that the F1 doctors are likely to value what their seniors' value or at least adopt behaviours that suggest they do. For this reason, having senior engagement with the developmental and examination nature of the procedures is required, otherwise the process will be perfunctory.

The Northern Deanery's portfolio, described in Appendix N and their framework for 'evidence of competence', has been shown to represent a significant amount of work for trainees and supervisors (Hrisos 2004). It is suggested that this may be one more pressure that this junior doctor will have to deal with and one more complex situation that will need to be negotiated with others. If the support surrounding the F1 doctor is problematic, it will become a significantly difficult task for them. The WTD does ensure that the F1 doctor will have more time, but not work time, when these assessments will need to be done.

7.4.2 Implications of the study findings to the Foundation Programme

It is difficult to state with any assuredness how the recent changes to the pre-registration year will affect the profession. After describing the complexity of professional practice in previous sections, one needs to avoid making trite statements about how things could be done better as any decision or action will have the potential to cause both positive and negative effects. What is certain is that, as a result of these significant changes, the medical profession will need to go through a consolidation period to judge which consequences and compromises are more acceptable than others. In order for the profession to make such judgements, it needs to better understand the clinical context and engage with the complexity of the knowledge needed by them and their juniors to work safely and effectively. It is hoped that this study will help in this pursuit.

7.4.2.1 Experiencing 'risk'

The forthcoming changes in working hours challenge the continued validity of some issues identified as 'risks' by the PRHOs in Phase One. For example, it is expected that tiredness, sleeplessness, the problems finding time to eat or go to the toilet will no longer be mentioned as 'risks' and that this in turn will impact beneficially on aspects of the F1 doctors' social life and what the PRHOs termed as 'health'. It is suggested that the *psychological risks* (*stress, anxiety* and *depression*) may still be reported because there is still much in the clinical context to cause them. However, the causal factors might now centre on the perceived lack of exposure rather than on the relentless exposure to practice. Arguably the *physical risks* from the patient and the job (although working less hours) will remain. The perception of *legal risks* will still exist. The new assessment procedures, which shift the decision of progression from the consultant to a panel, should reduce perceptions of *risk to careers* from difficult or problematic relationships.

Therefore, in terms of the *'risks to self'* identified by the PRHOs, some are likely to be positively affected by the changes. The perceived *'risks to the patient'* are thought less likely to alter as the *nature of medical work* will not have changed, nor will the 'risk' of some individuals *missing things, making mistakes* or *working beyond their scope of practice*. The F1 doctors may generally be less *tired* but there still might not be what they consider as 'enough' *support*. They may still *not seek help* or *know enough* and things will still be *new to them*. In fact, with the reduction of hours, these perceived 'risks' may even be of greater concern. The changes are also unlikely to have an effect on the deficits of the NHS system captured under the perceived 'risks' of *'collaborative working'* and *'team care'*.

The WTD will affect how long the F1 is working, but not what happens when they are working, and one of the challenges of writing this section has been trying to surmise how much effect the programme will have on what the F1 does on a day-to-day basis. Much will depend on the extent to which the F1 doctor is supernumerary in the team. Having less to do would mean that the F1 doctor would have more time to think through decisions

and be more deliberative about what he ought to do: some 'hot-action' could be cooled. There would be less need to rush and more time to think things through and (although this study was concerned with risk perception) this time could potentially lead to the F1 doctor making fewer mistakes. If not supernumerary, the F1 doctor's day-to-day challenges are likely to be the same, only shorter in duration. This is not to suggest the being supernumerary is in itself desirable. There might be important implications from not having the level of engagement described by the PRHOs, as the following sections explain.

7.4.2.2 Coming to know 'risk'

The data suggested that when faced with a situation, the PRHO picked up on 'risk' cues. An important part of learning these came from the reactions they gained from significant others, as well as the eventual outcome. The need to conform to accepted work practices and behaviours, and to ensure a positive outcome, were powerful mediators in PRHO behaviour, and it is argued that over time this affected the way that they thought about situations. It is feasible that without challenge or perceived detrimental outcomes or effects, there would be no need for the junior to re-conceptualise cues or change their approach.

I would propose that the development of an accepted framework for interpreting and actioning 'risk' required the PRHO to be surrounded by a desirable practice ethos which was perceived as essential to adopt. It is suggested that by having no feedback, by not 'buying into' desirable practice or by having no real or perceived sense of being part of something greater than oneself, the PRHO's practice would have been purely a product of his perceptions rather than external to his personal values. As an individual's perceptions can be fundamentally flawed, it requires him to be part of a system that has a collective sense of what is right, that is grounded in the values of the profession and/or institution, and validated by the wider community. This might also explain why those working independently, those with no immediate accountability, or those with no feedback from people whose views cannot be dismissed, may work on their own conceptions of 'risk' or of desirable practice and behaviour.

It is likely that the F1 doctors will, as the PRHOs did before them, wish to conform to the expected norms but, with less time in practice, it may be that they take longer to internalise and appreciate the situationally specific nature of the 'risk' cues. This will mean that always picking up on problematic cases and the spontaneous reading of 'get here now' cues will take longer to acquire. This, in turn, will ensure prolonged dependence and more strain on the seniors.

7.4.2.3 Promoting problem setting

Although working closely with others was a strong mediating factor in the PRHOs' actions, from their accounts this was not something that seniors engaged with in any systematic way.

Current trends would no doubt call for a prolonged period of 'reflection' by the junior. Arguably, only so much sense can be gained by a junior analytically deliberating upon a case, and this is not what is promoted here. What strategy is promoted is that cases are discussed routinely with seniors in terms of what the senior is taking into consideration, what the important factors are that he is paying attention to and using to inform his actions. This discourse will give the junior clinician insight and tacit understanding as to what is being valued by the senior in that instance and how the senior connects and balances competing demands. It should also inform the junior about what is expected of him when working with that senior.

What the junior may gain from these interactions are multiple snap-shots of relationships between factors, consequences, priorities and, ultimately, what constitutes an informed judgement. Although time and exposure to multiple cases will still be needed, it is felt that these types of dialogue with seniors will help build a more explicit sense of problem-setting or situational understanding. It is acknowledged that these descriptions will be inferior to the actual body of knowledge held by the more senior clinician. But does this actually matter? The strategy is not meant to be a substitute for the F1 doctor's personal

knowledge development. It is meant as a means of making what can be made explicit, overt.

The above cannot be considered novel and arguably already occurs in good teams with good clinicians who are good teachers and with good trainees. The argument here is that the reduction of contact within the clinical context means that, more than ever, these discussions need to become a routine part of clinical practice and not a product of chance.

The interaction proposed would, of course, be dependent upon the quality of the senior's judgement, which, from PRHOs' accounts, may be variable. It is therefore suggested that this type of discourse should not only be a part of the most junior clinicians' education, but of every trainee. Tutors or seniors should also be asking their juniors (and the F1's seniors) to describe their interpretations of problem-settings. This would allow seniors to gauge how well juniors were able to distinguish between the important factors within specific clinical cases.

Of course, this type of activity would take time, but it is argued that it would require less time than reflective episodes out of clinic and fit in with routine discussions about cases. For example, when the more junior doctor asks for help or advice, he relates their findings to the senior, usually by phone. The response by the senior on 'what to do' could also include the rationale behind their advice (if one actually existed) and what was being taken into account, and why. Making these judgements explicit, whilst also bearing in mind the uniqueness of the case, may take some of the guesswork out of practice and help the F1 doctor recognise patterns that are capable of being explicitly expressed. This is particularly important when there is less time available to arrive at these through implicit learning.

It is encouraging to see in the Case-based Discussion assessment (CbD), the competencies include the F1 doctor's ability to discuss his understanding of cases, his rationale in terms of investigations, referrals, treatments and management plans, as well as his ability to analyse the overall care of the patient. In terms of the other assessments,

although the feedback will be limited because of the 5 minute time-limit, even these constitute an important development in terms of verbalising the thinking behind action, and in gaining insight into the perceived relevance of factors.

7.4.2.4 Shifting from team to team

Although the expectation is that each F1 doctor will have three, 16 week placements, there is a possibility that some placements will be shorter in that a few of the four month posts consist of two eight week slots in different departments. These shorter placements will ensure that the effect of 'poor' or 'bad' seniors will be short-lived, rather than the prolonged engagement experienced by some PRHOs. Although this is a benefit of the new system, it also raises some concerns. The finding from a study on the occupational socialisation of nurses helps to illustrate some of these points.

One of the themes emanating from Kath Melia's study of student nurses (1987) was that of 'just passing through', as this group moved every 8 to10 weeks to another placement. Melia observed that the transient nature of these student nurses within a placement meant that they were capable of avoiding 'long term responsibility for their actions' (p.102). If this is true of all short clinical placements, this might have specific implications for the development of the F1 doctor's clinical judgement.

The PRHOs described, throughout this study, their general sense of responsibility for what they did, especially for patient care. It was for them significantly different from being a student because they knew that, as a PRHO, their actions mattered clinically and they were accountable for them. It is suggested that 'being responsible' to patient, self and team was instrumental in making them consider the consequences of their actions and with this the necessity, and consequently the ability, to manage competing demands. Demonstrating this judgement was imperative because it represented to others that they could do the job. This raises the question – will this sense of responsibility and the imperative to balance competing demands alter with a reduction in contact hours and more frequent changes of team? It is suggested that this judgement will remain an

imperative if the team and patient are dependent upon the F1's input and importantly he continues to perceive meaningful consequences arising from his actions.

The above is not the only concern with short placements. Melia recorded the need for an adjustment period by the student nurses when they moved to a placement and the necessity of getting to know particular working practices of the ward and ward sister. The unsettling nature of transition was also evident in the PRHO data. It was interesting to note how the student nurses relied initially on auxiliaries to familiarise them, in a similar way to how the PRHOs used the nurses to get to know their job. The student nurses described needing a period of over two weeks to just understand the routines of the ward, 'the unwritten rules' (p.105) (perhaps equating to some of the 'conventions' found in this study) and what was expected of them. An outcome of this was that the student nurses' attention was not patient-centred but staff-centred. If this is also true of F1 doctors, it is somewhat paradoxical that the perceived value of multiple and varied experiences described in the Foundation programme documentation may actually shift the doctors' attention away from learning about clinical work and will ensure that precious time is taken up getting to know routines and in trying to get on with 'significant' others.

The potential transient nature of the Foundation doctor raises other questions: how might meaningful allegiances and trust be formed in the comparatively short time spent with a team? How much effort may be made by a team to help the struggling F1 if members know that in a few weeks, the F1 will be someone else's 'problem'?

I would suggest that what is gained from working as an integrated and stable member of a team is of more importance in terms of clinical development than what is lost from not acquiring a breadth of experience. If the clinical environment was a stable feature, and the F1 doctor knew the routines and expectations of seniors, then situations would only need to be made sense of in terms of conditions, patients and limited contexts. Doing this would help the F1 doctor to be patient-centred for more of the pre-registration year as 'team' issues had necessarily been resolved early on.

7.4.2.5 Pressure on seniors

The data from this study highlights the multiple variables upon which the PRHO might have been required to deliberate upon when considering whether to contact a senior. Initially the expectation was that the PRHO would contact a senior in most instances, but as he gained more experience, this need would reduce. Later in the pre-registration year, the PRHO developed a sense of judgement which often related to knowing how sick or how problematic the patient's condition was and, as a clinician, how able he was to deal with it. This allowed him to judge whether he could continue and for how long without senior intervention. What I would speculate is that over time, with exposure to multiple pathologies, with variations in the presentations of 'sickness' within different contexts, and knowing the expectations of their seniors, the PRHOs' experiences taught them how to respond, even when dealing with novel cases. Their dependence on seniors therefore reduced.

The reduction of hours imposed by the WTD and the Foundation curriculum's support for multiple and varied experiences, may have a significant effect on the development of these abilities. The F1 doctor will have more varied experience but the lack of stability in the clinical environment, caused by shorter placements and less hours contact, may slow down the F1 doctor's ability to see patterns within the multiplicity of variables affecting outcome. The F1 doctor will of course develop the personal knowledge needed to 'know sickness', to understand multiple presentations and the actions needed within particular instances, but it will not be to the degree expressed by the PRHOs in this study. It will be built from less experience and less active experimentation. Audit meetings and critical-case analysis have been added to the Foundation syllabus and this is seen as a positive inclusion for engaging F1 doctors in critical analysis of clinical contexts and problems; in this study PRHOs appeared to be excluded from such activities. The Socratic dialogue described previously may also help.

However, it is envisaged that the F1 doctors will be dependent for longer than their PRHO counterpart. What is of concern is the amount of time that will be needed for a Foundation

doctor to gain these skills, and the strain placed on other team members as a result. In terms of teams or firms, employers need to recognise that service delivery will be performed by individuals who are not only managing patient care but also the needs of dependent juniors. This has resource implications if both are to be adequately maintained.

The final chapter considers some practical applications and recommendations arising from the study findings.

Chapter Eight – Practical applications and tentative recommendations to professional groups

8.0 Introduction

The aim of this study was to generate a conceptual understanding of clinical judgement in a 'risky' situation. The study was conducted to gain a greater appreciation of how this group of very junior doctors work and judge clinical situations.

The profession is currently in a period of transition and managing significant changes in how it delivers and manages its postgraduate training and, therefore, the following are presented as tentative recommendations only. The profession will decide what is valuable in light of the changes and consequently what is needed for strategic development. It is hoped that the following will facilitate those within the profession who design curricula and make policy decisions, by giving them further insight into the clinical context and what this study has found to be important features within it.

8.1 Applications and recommendations by profession

The findings have potential significance for several groups involved in medical education and for writers and implementers of policy in health care. The following section has been split into the professions with the authority to implement or affect change.

8.1.1 Medical educators

The medical education literature demonstrates a pre-occupation with teaching, and teaching is often perceived as equating to learning. The findings from this study suggest that this is not a fruitful way of conceptualising professional education. Learning about 'practice' can be thought of as occurring within the curriculum but it also occurs outside it. This goes beyond informal or hidden curricula because, as described in terms of judgement in the previous chapter, not all practice knowledge is taught. It is suggested that it is more constructive to think about practice in terms of Eraut's codified, cultural and personal knowledge. This allows one to conceptualise the range of knowledge needed to

work safely and efficiently, and how these different types of knowledge are essentially generated from multiple sources and constitute different but complementary 'ways of knowing'. Thinking about practice in these terms explains why 'real' clinical experience is important as this is the only way personal and cultural knowledge (relating to practice) can be developed. It also explains why standard assessments can only ever capture elements of the knowledge needed to 'do the job'. In recognising these issues, assessment systems can then be selected in terms of how well they capture the types of knowledge needed to represent 'competence' for the profession, whilst appreciating the inevitable compromises that these decisions entail.

Thinking about clinical practice in this way requires a conceptual engagement by medical educationalists with 'knowledge', which goes beyond thinking about it as an easily compartmentalised, concrete and stable entity.

The terms decision-making, problem-solving and judgement should not be used synonymously in medical education. This is important because each requires very different approaches in terms of learning, teaching and assessment. For example, decisions and problems can potentially exist and be dealt with without reference to any context. In contrast, judgement, by its nature, is inextricably context bound and measures of its acumen are dependent upon the specific context in which it takes place. Judgements, like clinical practice and health care, are more usefully deliberated upon when viewed as complex, and adaptive, rather than as a stable, sequential, prescribed process. 'Judgement' within the clinical context should be thought of as a dynamic process involving deliberation and discernment using situationally moderated knowledge that is mediated by professional and personal values, in order to create a balance between competing consequences. It is argued that if conceptualised in this way, judgement cannot be taught, but emerges from repeated engagement with multiple variables in a professional culture and from the junior doctor appreciating the impact a change in a single element may have overall.

8.1.2 Curriculum designers of the Foundation process

There are two issues arising from this study that need to be taken into account when developing and refining the Foundation curriculum: the importance of stability and repetition in developing judgement, and the role of the team structure in both developing the F1 doctor and in maintaining patient safety.

The Foundation programme, because of pressures from the WTD, needs to create an environment where the same knowledge is acquired in the pre-registration year but with less clinical exposure. However, it is argued that 'serving time' contributed to the knowledge development identified in this study. The judgements which allowed the PRHOs to clinically assess the 'risks', to know 'sickness', 'illness' and the cues that made a situation a 'get here now' call, were built from routine activity and from repeated exposure to similar, but slightly different, situations. There are therefore implications from changing this feature of medical training. The Foundation programme promotes the value of the F1 doctor gaining experience of multiple specialties. As described in the previous chapter, there are implications to using the Foundation year for this purpose: the F1 doctors' ability to work independently will take longer to achieve and consequently additional resources (time and senior input) will be needed to help support those who support him.

The study's findings explain why it is imperative that the F1 doctors are placed within a stable and supportive team structure and one in which they have a meaningful, not supernumerary role, in patient care. This will have two functions. Firstly, it will allow the F1 doctor to develop his personal clinical knowledge whilst patient safety is maintained. Secondly, having a real sense of responsibility for patient care and working within a team will ensure that the F1 doctor develops the skills of 'knowing his limits' whilst necessitating that he balances multiple agendas and consequences.

The above activities should not be undervalued as it is these skills that appear to be central to successful and safe medical practice. Nor should the profession believe that this

knowledge can be acquired in isolation from those (the seniors) who have been there, obtained the experience and who have internalised this collection of knowledge. The knowledge held by the PRHOs and described in this study, cannot be imparted by espousing rules, but learned from continuous and meaningful engagement with the clinical context.

8.1.3 Educational Supervisors and Clinical Tutors

If the team is to support the F1 doctor, education, training and guidance has to be given to these ward-based practitioners. If time is to be spent effectively, the trainers (both managers of the educational process and those delivering it), must understand how they can facilitate the F1 doctor's development.

It is suggested that the focus of education, training and guidance should be on developing the tutor's understanding of the knowledge created 'in' and 'by' practice and not just on teaching techniques. This may also help seniors towards greater insight into the different types of knowledge needed for practice. For example, what is personal knowledge and how does it differ from codified knowledge? How can an F1 doctor be supported in his acquisition of personal knowledge? Knowing about cultural knowledge, and its importance, may make the educator more aware of the role he has in guiding and supporting his junior. Techniques described in the previous chapter should be employed to engage trainees and tutors in discourses about their judgement of situations whilst delivering health care.

It is not yet clear how the portfolio evidence generated from the Foundation years will be used in the assessment of doctors and whether the outcomes from the various tools will be treated as actual measures of competency. The findings from this study would suggest that to demonstrate the ability to learn and develop is more relevant to the complex world of the clinical context than merely demonstrating an ability to do a single task, in a specific context, under certain conditions. However, it is hard to imagine, in the current political climate, that the profession would accept a move away from testing specific

'competences'. If this is the case, a more robust scale than is currently available will be needed.

It is recommended that educational supervisors have input into practice assessments instead of the F1 doctor being responsible for selecting his own assessors and what he will be assessed upon. Input from an Educational Supervisor will help ensure that the assessment presents an appropriate challenge. In line with this, part of the evaluation of the assessment processes needs to involve gaining insight into the cultural 'game-playing' that has the potential to surround the assessment procedures currently being prescribed (appendix N): for example, why particular procedures are chosen for assessment; why particular people are selected; what agendas the F1 doctors are fulfilling by these choices.

8.1.4 Consultants

The profession as a whole works, and needs to continue to work, as an agent of social control. This is not to suggest employing guidelines and policies would ensure that this happens. The sense of responsibility and accountability, which was so pervasive through the transcripts, needs to remain embedded in the clinical context, not imposed by an external system. It has been argued in this thesis that the values that ensured safe practice were maintained by working within a hierarchical team structure and one in which the consultant holds significant power. Therefore, there are implications of the demise of the hierarchical team structure within the profession and the authority of the consultant within that team.

This is not to suggest that the system studied was perfect. It had a number of apparent weaknesses. The study identified four elements that needed to be in place for 'calling for senior support' to function effectively: when the PRHO recognises a need he will call, the senior will come when called, the senior brings more knowledge to the situation and, the PRHO has the right level of confidence. Although in the data there were functional reasons why the PRHO did not call and the senior did not come, there were instances when these

elements needed to be upheld in terms of maintaining patient safety, but they were not. In terms of this study's recommendations, what is important to recognise is that there did not appear to be any explicit 'safety net' when systematic problems arose in any of these areas. For example, how could a SHO be notorious for failing to come when called without this being picked up by his seniors and/or challenged by someone? This study identified organisational issues (those described in surgery and when working away from one's own team) and personnel issues (the uncooperative senior and the potential problems with maverick juniors) that interfere with contacting a senior. Although these issues arose directly from working within a team structure, there were no formal mechanisms for ensuring these were upheld. A recommendation of this study would be that formal mechanisms are explored. As leader of 'the team', the identification of problems should be a concern to the consultant but one that may require the support of management to address.

8.1.5 Policy makers

From the findings, it was apparent that there were multiple factors influencing the PRHOs' behaviour and their decisions about patients required them to take into account the socio-cultural environment as well as the patients' bio-medical needs. It is suggested that this situation is true of, not just PRHOs, but all training grades and perhaps of all individuals working within a close community training environment. It is therefore important for policy makers, who aim to drive initiatives in practice, to take into account the multiple factors which influence a clinician's behaviour, including those which arise from professional education being a socio-cultural process.

From listening to the PRHOs describe their working / training lives, it was, on the whole, considered by them as a functional and effective training system and appeared to have more relevance to these juniors than the protocols and procedural controls generated by the institution where they worked. PRHOs complied with what their seniors wanted and would follow their lead. Policies for introducing change in practice need to take into

account the significant cultural shift that is required if doctors are to adopt different ways of working.

It also needs to be remembered by policy makers that 'being discerning', was an integral part of a doctor's training and essential for effective and efficient practice. I would suggest that changes which are not easily adopted, or which are perceived inferior to the current way of working, are likely to be ignored or, if enforced, become an adjunct to established practices rather than replacements. Understanding this and how rules and policies are operationalised in the clinical context may help to develop a strategic approach to implementing change.

Initiatives that are focused on altering the way in which doctors work together need to consider the impact this may have on patient safety and how juniors learn and practice adaptively. Strategies will need to be instigated to bolster any deficit in these areas if radical changes to the team structure are to be implemented.

The current emphasis in clinical training is on multi- or inter-professional education and multi-professional teams (DoH 2000a; DoH 2000b; DoH 2000c). I would argue that consideration also needs to be given to making the mono-professional teams work more effectively together and also establish procedures to facilitate mono-disciplinary team working, specifically in terms of training and supporting junior doctors. Needing to be addressed are issues such as the problems juniors face when placed within dysfunctional teams or when the only available seniors will not help them. Systems, strategies and policies need to be developed to deal with these problems.

8.2 Recommendations for future research

The following are suggestions for research projects that could give further insight into risk as a clinical phenomenon, how judgement is developed and how training in these areas can be supported.

- Exploration of the relationship between specific hazards and the issues newly graduated practitioners face when contextualising these as clinical problems. The focus for this study represents a shift away from problem-solving to one of problem-setting and would require engagement with research perspectives that are not common within medical education.

- Further insights could be gained about practice by identifying the differences between how an issue is conceptualised within the academic, organisational and practice contexts. For example, it is speculated that topics such as 'patient safety' or 'clinical errors' have different meanings within the three contexts and that 'problems' are defined differently within each and therefore create diverse responses. Gaining an understanding of these differences would allow curriculum designers to be aware of what happens to taught theoretical models when applied in practice, and perhaps give insight into how theory and policy can better inform and impact on practice. It would also be interesting to see if other professions, such as nursing, differ from doctors in their conceptualisations of such issues as 'risk', 'safety' and 'errors' and how these conceptualisations mediate their professional behaviour.

- Social controls were evident in the study data and conformed to by 'good' PRHOs. Studies of doctors undergoing remediation may give further insight into how individuals make judgements by understanding what prevents these doctors from conforming to the controls to which other doctors would adhere. For example, asking for assistance and help is an acknowledged and accepted option for doctors when they reach the limits of their knowledge. So why do some doctors not do so, or why have some failed to recognise their own limits? Also, understanding why individuals or groups do not conform to these established control mechanisms would give valuable insight into how the professional bodies might strengthen their role. Researching these aspects of judgement may be considered a move towards theoretical sampling for this study.

- If the organisation of training is not significantly altered by the introduction of Foundation Programmes, studies should be conducted to identify common weaknesses in training and working within hierarchical structures.

In conclusion, what those responsible for doctors in training and various aspects of risk management might profitably take from this study is an increased awareness of the significance that the often under-regarded aspects of professional training have to practice, and consider what might be lost by their demise. Examples of such aspects are the functionality of the hierarchical system in terms of training and patient safety, the potential importance of routines and stability in juniors developing conceptualisations of 'risk', and the importance of problem-setting, as well as problem-solving, in clinical work.

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Appendices

The number of PRHOs per size of hospital in 2001

Beds	Teaching hospitals	PRHOs
806	Royal Victoria Infirmary + Newcastle General Hospital	34
810	Freeman Hospital	23
	Large General Hospitals	
1070	Sunderland Royal Hospital	19
998	South Cleveland Hospital– South Tees	21
	Medium Sized Hospitals	
557	North Tees General Hospital	13
546	North Tyneside General Hospital	14
538	South Tyneside District Hospital	12
509	Queen Elizabeth Hospital	15
450	Darlington Memorial Hospital	13
447	West Cumberland Hospital (Whitehaven)	13
427	Dryburn Hospital	19
379	Cumberland Infirmary (Carlisle)	12
352	Hartlepool General Hospital	12
340	Bishop Auckland General Hospital	11
309	Wansbeck General Hospital	18
	Small Hospital	
253	Hexham General Hospital	4

Appendix B(i)

Phase One - Letter to Clinical Tutors for Group sessions

Dear

In 1998, you kindly helped me in the development of the Self-evaluation instrument for PRHOs by giving me access to the PRHOs within your Trust via their lunchtime teaching sessions. I am writing to ask you for the same assistance with another study we are undertaking at the Postgraduate Institute.

The focus of the new study is on how clinical risks are perceived by PRHOs and how contextual factors mediate their perceptions and behaviour. The study is designed so that we may understand the processes PRHOs employ to evaluate 'risky situations'. There is very little known about tacit knowledge in professions and this study should give us a greater understanding of the factors and rules that are mediating the PRHOs' behaviour at certain times. This understanding will allow us to employ more focused educational planning.

The Postgraduate Institute is funding the study but the work will also be my PhD thesis.

For the first stage of my data collection I need to interview groups of PRHOs as well as individuals. I would like to use your hospital to do the group interviews.

Do you have a PRHO lunchtime teaching session available any time between April and July of this year that I could use for the first stage of data collection? In this session I plan to explore how the term 'risk' is used by PRHOs and what range of circumstances the term is applied.

I will telephone you next week to answer any questions you may have about the study and if possible, arrange a time when I can speak to your PRHOs. Thank you very much for your help.

Best wishes,

Jane Stewart MSc Cert.Ed.
Research Associate

Appendix B(ii)

Phase One - Letter to Clinical Tutors for Individual interviews

Dear

In 1998, you kindly helped me in the development of the Self-evaluation instrument for PRHOs by giving me access to the PRHOs within your Trust. I am writing to ask you for assistance with another study we are undertaking at the Postgraduate Institute.

The focus of the new study is on how clinical risks are perceived by PRHOs and how contextual factors mediate their perceptions and behaviour. The study is designed so that we may understand the processes PRHOs' employ to evaluate 'risky situations'. There is very little known about tacit knowledge in professions and this study should give us a greater understanding of the factors and rules that are mediating the PRHOs' behaviour at certain times. This understanding will allow us to employ more focused educational planning.

The Postgraduate Institute is funding the study but the work will also be my PhD thesis.

For the first stage of my data collection I need to interview individuals as well as groups of PRHOs and would like to use your PRHOs for the individual interviews. The interviews need to be done between April and July of this year. I plan to use this time to explore how the term 'risk' is used by the PRHO and what range of circumstances the term is applied.

I need to select a varied sample of PRHOs for these interviews. I want to ensure that my overall sample includes a mixture of ability, PRHOs both in medicine and surgery and males and females. I would be very grateful for your help in selecting a sample of PRHOs.

I will telephone you next week to discuss the study and whether it will be feasible for us to select a sample. Thank you for your help.

Best wishes,

Jane Stewart MSc Cert.Ed.
Research Associate

Appendix B(iii)

Phase Two - Letter to Clinical Tutors for Individual interviews

Dear

Last year at the Grasmere conference I described a study we were undertaking to investigate situational understanding of clinical risks as they are perceived by PRHOs. The first phase of the study explored what PRHOs viewed as the 'risks of the pre-registration year' and findings indicated that one of the important factors in mediating risks to patients was identifying when they needed help or advice from senior colleagues.

This year, for the second phase of the study we want to explore what and how contextual factors influence the PRHOs' decisions to ask for help and again need to interview individual PRHOs. I would like to conduct *(fill in number)* individual interviews with PRHOs from *(the name)* hospital.

I need a varied sample of PRHOs to ensure that my overall sample includes an equal number of males and females and PRHOs in both medicine and surgery. Also the PRHOs selected for interview should be those who are thought to be 'safe' i.e. no serious issues have been passed onto you as Clinical Tutor by their educational supervisor or other members of staff.

I would be most grateful for your assistance in helping me select a sample of PRHOs and I will telephone you next week to discuss the study and how a sample might be selected. Thank you.

Best wishes,

Jane Stewart MSc Cert.Ed.
Lecturer in Medical Education

Appendix B(iv)

Phase Three - Letter to Clinical Tutors for presentations

Dear

Re: Situational understanding of risk by pre-registration house officers.

You may recall I talked at the Clinical Tutors meeting at Grasmere in 2001 about the above study and came to interview some of your PRHOs for the first phase of this study. I am now at the third phase of the work and need to ask for your help again.

Previous phases of this study have allowed me to identify the risks PRHOs' perceive within the pre-registration year and specifically the factors that influence his or her decision to call for help and advice. From these data I am developing a theoretical model that describes PRHOs' situational understanding of risk. To ensure that the model is a meaningful representation of the experiences of house officers, I would like to present this model to them and to ask their opinion on its accuracy.

In order for me to do this I wondered if you had a 'PRHO' lunchtime teaching session available any time in June or July 2003 that I could use to present the findings of my study? I will telephone you next week to answer any questions you may have about this stage of the study and if possible, arrange a time next year when I could speak to your PRHOs. Thank you again for your help.

Yours sincerely

Jane Stewart
Lecturer in Medical Education

Appendix B(v)

Phase Three - Letter to Clinical Tutors for presentations

Dear .....

Re: Situational understanding of risk by pre-registration house officers.

You may recall I talked at Grasmere (2001) about this study and came to interview a group of your PRHOs in spring of the same year, about their perception of risks within PRHO practice. I am now at the third phase of the work and need to ask for your help again.

Previous phases of this study have allowed me to identify the factors that influence a PRHOs' decision to call for help and advice and the considerations that mediate their decisions – a theoretical model of situational understanding of risk has been developed from these data. To ensure that the model is an accurate and meaningful representation of the experiences of the house officers, I would like the opportunity to observe PRHOs in practice to ensure that the theoretical model represents their 'lived' experience.

What I would like to do with your help is observe two PRHOs, one from medicine and one from surgery, each over 2 to 3 days. These observations would not involve patients just the interaction the PRHO has with colleagues. The PRHOs would need to be comfortable with my presence and therefore I would like them to be volunteers. I will of course also seek ethical approval for this stage of the study.

I will telephone you next week to answer any questions you may have about this stage of the study. Thank you again for your help.

Yours sincerely

Jane Stewart
Lecturer in Medical Education

Appendix C

Phase One – Letter to PRHOs for group interviews

Dear

On the ..... I shall be attending your lunchtime teaching session to talk with you and other PRHOs about what you consider are the risks you face within PRHO practice. This discussion is the first part of a three-year project funded by the Postgraduate Institute for Medicine and Dentistry and my PhD project, to explore aspects of non-formal learning within clinical practice.

What I want to do in the session is gain a better idea of the different sorts of risks you deal with in your work and the sorts of risks that are typical for PRHOs. Most risk researchers decide what risks will be investigated in studies but by interviewing you this way, I hope to focus further stages of data collection on the areas that are truly pertinent to PRHOs and not ones that the Postgraduate Institute or I think are relevant.

I do hope you will be able to come and share your thoughts about the above subject. All of your comments will be treated confidentially and neither you nor your hospitals will be identified in any documentation from the study.

Thank you for your help and co-operation.

Yours sincerely,

Jane Stewart MSc Cert.Ed.
Research Associate

Appendix D(i)

Phase One – Letter to PRHOs for individual interviews

Dear

Re: 'Risks and the pre-registration year'

I am conducting a study about risks in the pre-registration and would like to interview you to find out your experiences and thoughts on this matter. This discussion is the first part of a three-year project funded by the Postgraduate Institute for Medicine and Dentistry and my PhD project, to explore aspects of non-formal learning within clinical practice.

What I want to do in the interview is gain greater insight into the different sorts of risks you deal with in your work. Most risk researchers decide what risks will be investigated in studies but by interviewing you this way, I hope to focus further stages of data collection on the areas that are truly pertinent to PRHOs and not ones that the Postgraduate Institute or I think are relevant.

I do hope you will be willing to talk to me about the above subject. The interview should take about 45 minutes and all of your comments will be treated confidentially and neither you nor your hospitals will be identified in any documentation from the study.

I shall phone you next week so that I can answer any questions you may have about the study and if you are willing, to arrange a convenient time for us to meet.

Thank you for your help and co-operation.

Yours sincerely,

Jane Stewart MSc Cert.Ed.
Research Associate

Appendix D(ii)

Phase Two – Letter to PRHOs for individual interviews

Dear ....

As part of a three-year project funded by the Postgraduate Institute for Medicine and Dentistry I am investigating aspects of professional knowledge held by pre-registration house officers. The project will also contribute to my PhD.

Last year I interviewed 67 PRHOs in the Deanery to explore the risks they perceived in their clinical practice. One of the important mediators in reducing risks was seeking advice or help from others. This year I would like to discuss with house officers the factors that influence calling for help so we can gain greater insight into this decision process. **I would like to interview you to find out your experiences and thoughts on seeking advice and help from others.**

I do hope you will be willing to talk to me about the above subject. The interview should take about 30-40 minutes and all of your comments will be treated confidentially and neither you nor your hospitals will be identified in any documentation from the study.

I shall phone you next week so that I can answer any questions you may have about the study and if you are willing, arrange a convenient time for us to meet.

Thank you for your help and co-operation.

Yours sincerely,

Jane Stewart MSc Cert.Ed.
Lecturer in Medical Education

Details of PRHOs - Phase One

The responses you give to the following questions will only be used to describe the sample group. *Circle the responses that apply to you:*

a. Your gender: **Male** **Female**

b. Are you a Newcastle graduate?

Newcastle Other (please specify).....

c. Is this your: **1st house job** **2nd house job** **3rd house job**

d. Current house job: **medicine** **surgery** **other:.....**

e. Which best describes the nature of your rotations within the pre-registration year (*tick the appropriate box*):

- ☐ **Medicine / surgery** **6 month rotations**
- ☐ **Medicine / surgery** **3 month (x2) rotations**
- ☐ **Medicine / surgery / general practice**
- ☐ **Other: please describe: .....**

f. List the risks in clinical practice.

Details of PRHOs - Phase Two (& Three)

The responses you give to the following questions will only be used to describe the sample group. *Circle the responses that apply to you:*

a. Your gender: **Male** **Female**

b. Are you a Newcastle graduate?

Newcastle Other (please specify).....

c. Is this your: **1st house job** **2nd house job** **3rd house job**

d. Current house job: **medicine** **surgery** **other:.....**

e. Which best describes the nature of your rotations within the pre-registration year (*tick the appropriate box*):

☐ **Medicine / surgery** **6 month rotations**

☐ **Medicine / surgery** **3 month (x2) rotations**

☐ **Medicine / surgery / general practice**

☐ **Other: please describe: .....**

Phase One - Individual Interview schedule

- *To explore the use of the term 'risk' and 'risk incident' in PRHO practice*
- *To detect potential methodological problems for the study*
- *To explore particular situations that may be useful to focus the questioning in stage 3*

Introduce self and study – work for the PGI as a researcher / education tutor. Interested in exploring risks and PRHO practice. Function of this stage - talk with you and other PRHOs so I may gain a better idea of the different sorts of risks you deal with in your work and the sorts of risks that are typical for your grade.
IS THAT OK! ANY QUESTIONS?

Wish to **tape** the session to use transcripts for analysis. What you say will be confidential and anonymous. Are you OK with that?

First complete this data-sheet – this will allow me to describe my sample. *They fill it in*

- What are the risks you can identify in your clinical practice? (Explore examples, assessment and management of risks.)
- So, what for you defines 'risk' in your practice?
- Can you give me an example of risky situations - altered your clinical practice? What would you call this type of event?
- What has this year taught you generally about clinical practice? Dealing with risky clinical situations?

Phase One - Group Interview schedules

- *To explore the use of the term 'risk' and 'risk incident' in PRHO practice*
- *To detect potential methodological problems for the study*
- *To explore particular situations that may be useful to focus the questioning in stage 3*
- *Can they discuss in groups*

- Introduce self and study – work for the PGI as a researcher / education tutor.
  Interested in exploring risks and PRHO practice. Function of this stage - talk with you all and other groups, so I may gain a better idea of the different sorts of risks you deal with in your work and the sorts of risks that are typical for your grade. *IS THAT OK!* ANY QUESTIONS?

  I would like to tape the sessions but only so I can listen to what you have said and make notes later. What you say will be confidential and anonymous. Everybody OK with that?

- First complete this data-sheet - allows me to describe my sample. *Fill in*

- What risks would you all identify in your clinical practice?. Explore examples, assessment and management of risks.

- So, **what for you** defines 'risk' in **your** practice?

- Can you give me an example of risky situations that have altered your clinical practice?
  What would you call this type of event?

- What has this year taught you generally about clinical practice? Dealing with risky or uncertain clinical situations?

Phase Two - Interview schedule

Intro

- Introduce self.
- Studying risks in the pre-reg. year to understand the sorts of judgements PRHOs have to make in the real world
- Last year looked at what PRHOs see as the hazards and threats – an important aspect was asking advice and getting help.

- I would like to understand asking advice and calling for help
- The reason for taping interview – qualitative study. *Explain what happens to the tapes and confidentiality etc*
- Need for honesty
- Does this sound OK? Any questions?

Questions

1. Tell me about asking for help and advice?

Prompts for stories

a. Who was involved?
b. Why was the decision made?
c. Was there key factors about the situation that influenced you calling for help? (other factors)
d. What were you hoping to gain from calling for help?
e. What help did they give? (Who did what?)
f. What was the outcome?

2. Incidents when you asked for help and advice and felt afterwards you shouldn't or didn't and thought you ought?

3. How do you know what is beyond you

4. Do you have any stories that illustrate the above?

Appendix G

Phase Three Observations – letter to PRHOs

Dear

Study exploring risk perception by Pre-registration House Officers:
Volunteers sought for observations

I am writing to ask for your help with this study which is investigating aspects of professional knowledge held by pre-registration house officers, specifically how they identify risks and what factors mediate calling for help and advice. The study is funded by the Postgraduate Institute for Medicine and Dentistry but is also my PhD thesis.

Over the last two year I have interviewed PRHOs throughout the Deanery to explore the risks they perceived in their clinical practice. One of the key factors identified in reducing risks to patients was seeking advice or help from others. Last year I interviewed another cohort of PRHOs to discuss with them the factors that influence calling for help and advice and what mediated their decisions. This year I want to observe a few PRHOs at work to help me gain greater insight into the systems described in these interviews.

This year I need a volunteer from surgery and one from medicine to observe them at work. The observations would be over two days and include some on-call duties. The observations will not include patient examination or treatment or interfere with your clinical duties and will only be written up as field notes to help or to challenge my analysis of the interview data. I will need to conduct a short interview at the end of the observation period to clarify any points arising from the observations. This would last about twenty to thirty minutes and the interview would be audio-taped but comments or cases observed over the two day period will not be directly referred to in any documentation arising from the study or discussed with any members of staff at North Tyneside.

I would be grateful if you would consider volunteering for this stage of the project as it is important for ensuring rigour within this study design. I have asked Professor Barton to be available at one of your lunch-time group meetings so he can collect the names of people interested in helping and he will then pass any names on to me. I will phone volunteers to answer any questions you may have about the study and if still willing, arrange a convenient time to do the observations.

Thank you for your help and co-operation.

Yours sincerely,

Jane Stewart
Lecturer in Medical Education

Appendix H

Phase Three Group presentations – letter for PRHOs

Dear .....

Study exploring risk perception by Pre-registration House Officers

At your lunchtime teaching session on the ..... I shall be presenting the results of a qualitative study I have been working on over the last two years. The study has investigated professional knowledge held by pre-registration house officers, specifically how they identify risks and what factors mediate when to call for help and advice. The study is funded by the Postgraduate Institute for Medicine and Dentistry but is also my PhD project.

What I would like to do at the lunch-time meeting is present my findings so I may check with you and your colleagues that the inferences I have drawn from the interview data are recognisable to people 'doing the job'.

I do hope you will be able to come and share your thoughts about my findings and help to ensure that the conclusions I am drawing from the data are appropriate. All of your comments will be treated confidentially and neither you nor your hospitals will be identified in any reports or documentation arising from the study. The session will be audio-taped but this will only be used to help me make accurate notes of our discussions.

Thank you for your help and co-operation and I look forward to meeting you on the .....

Yours sincerely,

Jane Stewart
Lecturer in Medical Education

Appendix I

Worked example of the analysis

The transcripts were initially sorted by content. To do this, line by line coding, or if more appropriate, paragraph by paragraph coding was done. These were placed under free nodes within the computer package NuDist. The contents of each free node was then re-sorted within the node and arranged into subheadings.

The example given here is of the free node F9: 'criteria for decisions'. Once all the data under this free node had been gone through, it was further subdivided into four 4 sections, again done by content. The titles of the subdivisions describe the data held within it: '1. Reasons one calls seniors'; '2. Criteria for contacting a senior'; '3. Variables influencing calling for help' and; '4. Criteria for urgent calling for help'.

Presented below is one of these subdivisions 'criteria for contacting a senior' and illustrates how the data was further organised. The data and analysis are presented in italics. The symbol * at the end of some quotes was used to indicate that I had a comments about that data. These are held at the end of the section.

F9 – Criteria for decisions *started 14th October 2002*
Appears that this is much more of an issue when on-call and at night because there are less people about, more pressure on the PRHO so they have to actively make decisions about contacting seniors. There are also issues about surgery because the seniors are in theatre or clinic – in another part of the building.

2. Criteria for contacting a senior
Criteria for contacting a senior:
Ring about most things unless: ***wasn't serious***, ***wasn't*** *really going to* ***change management.*** *Would if I* ***thought*** *it was fairly* ***important*** *and* ***they should know*** *– like someone with the potential to be ill during the night. Let seniors know for 3 reasons: - 1. Aware of potentially serious problems –* ***get support***, *2.* ***Learning points***, *3.* ***Covering myself*** *(A1:169-80)* this actually belongs in reasons for contacting seniors.
Tend to ***think twice*** *about it. If I think twice I should probably chat (A1:229-231)*
If deciding to 'not contact' but think 'Mmm', for my own piece of mind, just check things are going OK (A1:235-8)
Still cautious about anything that ***haven't experienced or not happy dealing*** *with – seek senior help once simple things done. (A1:300-3)*
Calling for help: an ***individual thing*** *that you get little advice about. Do it* ***if not sure.*** *Down to: how you feel about the case, whether you* ***understand what's going on,*** *whether you're* ***happy about what's going on,*** *whether you're happy to just* ***leave it***

with what you've done. *Self-awareness – pick it up yourself and* ***different between everyone*** *(A2:413-24)*

From PRHOs perspective

If ***not seen the problem before*** *always get some advice, either straight away or half an hour later. (A3:277-9)*
Concern that they may have ***missed something*** *(B8:493-7)*

PRHO – being happy, tacit knowledge

Being happy

If you're not happy you're not happy and no one can change your personal feeling – so people complaining that you are calling too much is unlikely to happen. (A2:447-51) (with lots of variables and people seeing different conditions regularly, it needs to rely on how the individual PRHO feels).
You may feel uncomfortable calling but if you are unhappy you will probably call (A2:52-7)
Some part of worried about them, I think they're not well – ring because: not seen, don't know next step, seen it and I'm then worried. Start next line of treatment but would expect senior to be involved because: a. prognosis bad, b. patient very unwell. ((A4:352-9)

Tacit knowledge

Rely on gut feeling. Hard to say why with one patient you want someone now. (A3:332-339)
Some people get a gut feeling that patient needs to be seen, want senior to cast eye over. (A4:102-111)
*Major factor in calling is I'm not happy –gut feeling again. (A4:350-2)****

Gut feeling I'm out of my depth. Sinking feeling. 1st collect thoughts. Try and work through problem. Go as far as I feel I can then ring for help. Say this is what I've done, thinking of doing, what do you think. (A10:6-23)
Gut feeling I am competent. Think sometimes if I stood in a court of law could I justify not calling for help = defensive medicine. (B10:43-52)
Connect some of this with the tacit knowledge section (F18). Plus knowing when a patient is sick

From patient's perspective

State of the patient*: don't like the* ***look*** *of, not* ***stable****, not* ***doing as imagined****, not* ***responding to treatment*** *(A7:597-600)*
Deciding factors of letting seniors know – by ***progress of patient****. OK if settling. If not settling contact senior. (B8:430-5)*
Not responding *to treatments. (How you feel the patient is doing). Results come back and not sure of action in relation to them. (B8:440-50)*
Describing stability – *investigations – not happy = something is wrong.* Stability is an important factor for this PRHO. *Patient not stable contact senior (B8:463-77)*
*'****Change****' need senior's opinion. Compare with old investigations. Doubt of normalcy of changes – contact senior (B8:481-9)*

Patient – indications from clinical features, criteria for deciding state of patient

Indications from clinical features??

Clinical features suggest underlying pathology and causes of the fall (A2:98-108)
When on-call – decisions about seeing patients referred by nurses over the phone. Presented by nurses as a big change in patients from normal state (A2:296-308)
Criteria for deciding on state of patient
Decisions about patient based on severity and background: positive – usual for patient, stay the same or improve slightly, or unusual for patient, decreased consciousness, shortness of breath. (A2:201-207)
Judge whether it is normal for that patient. Normal for their average condition and whether that's got worse or better. (A2:318-26)

Systems perspective

Now, contact seniors about unwell patients – courtesy – if patient needs moved (call straight away (B11:37-45)

System – what seniors want
What the seniors want
Seniors only want to hear if something wrong. Pat also told if any doubts phone *(B10:513-520)*
Seniors want same information. PRHOs make sure that they have the set of information for each case. (B14:514-21)

Quotes that cover both or all three

***Ring** for help if:*
*- If **not seen before** – not seen **clinically**. 'Clinical' different from textbooks. Don't know if it is what you've read about – other causes to similar picture**
*- If I've **reached my limits**. Done everything I can think of but still unhappy or think further stuff might be required*

*- If **someone very ill** often need help just physically as well as for own knowledge (A3:283-297)*
*If confident, know what I'm doing, will do it. Call for help **if stuck**. If routines go ahead and do it. If **worried** about a patient I'll call for help. Think I can manage without problems – does it. (A5:212-27)*

*Main deciding factor in calling for help - **State of the patient** but also take into account things like **geographical factors**. State of the patient = continuing symptoms, what obs. are like and not like the look of. (A7:544-61)*
Contact senior if:
- *you don't know what the **next step** should be*
- *if at all **uneasy** about **what's wrong** with patient or **my actions***
- ***beyond the remit** of a PRHO*
- ***beyond my experience** that I'm not comfortable with. This changes over time. Did medical job first so happy to deal with shortness of breath as seen on COPD pat.* About familiarity *(B10:126-138) ****

You can call the senior up and let them know what's happening. Then they can decide to come out or not but you first have to decide whether you leave contacting them until a better time and they are out of theatre. (B14:85-96)
Don't contact if confident you know what's wrong and you judge the patient isn't ill. If reg there during the day, may ask but not at night. If nothing to be done over and above what PRHO does, leave it. In surgery- ask yourself does the patient need to go to theatre in middle of night (because that would be the reason to contact a senior in

surgery). Need to be confident in your decision. If in doubt contact SHO – who with more experience can maybe judge whether reg. needs to be called. (D19:208-39)
Do call if can't settle someone's pain. (gives case example – no urine output, clear and marked signs and symptoms of gross heart failure = really ill. Did basic stuff. Administered diuretic. Nothing happened -> need help. Phoned SHO and explained situation (also requested anaesthetist). Would have been negligent not to have called because out of my scope of ideas. Given basic initial treatment, didn't change anything. Decision with family and team not to resuscitate. Happy to make decision of palliative diamorphine as already decided by the team.
Told SHO what I'd done, not asked what shall I do. (D20:198-62)

The following are brief notes that were written along with the sorting of the data for all the data held under the 'criteria for decision' free node.

Comments
**This is about experiencing the condition, seeing it as valued rather than having textbook knowledge of the condition*
*** Big decision - if never seen call, then presenting features of patient will be the deciding factor of what you ask your senior for e.g. advice, them there etc.*
**** So you start by calling about everything – everything? Then you start developing a feel for patients as well as the rules, + experience on how to manage things. You can start differentiating between patients – when you need to call, when you can manage but also when a patient is ill.*
***** These are rules. This is what I'm getting at with my questioning – what they ought to be doing. Not surprisingly really that there are such clear unambiguous rules and I'm being told them.*
****** This I feel is important. It is about informal learning. It has to start with the PRHO calling for everything because they have to learn what they do and do not do over time not just be told the rules at the beginning (phone for this, don't phone for that). This system allows the individual to learn / develop at their own pace potentially. However it relies on the learner having insight into their own ability and being responsible!*
Think that there are probably facilitating factors for calling for help as well as restricting. There are probably those intrinsic to the PRHO and those out with them (from nurses, seniors etc. Need to capture these clearly on the diagram.
******* Is it that PRHOs cannot see themselves as at fault? This has to be an issue because if they recognised something was problematic, they would phone.*
******** So what about covering oneself etc? Why does it not count in this case? Is it because nothing was going to go wrong?*
********* What they are asking the nurses to do (go through the signs and symptoms) is like what the seniors ask of them.*

From the above sorting of the data, a diagram was produced (see below). This attempted to include all of the points held within the node or subsection of the node. A diagram or several diagrams were constructed for most of the free nodes (see examples of these in Appendix J)

F9 - CRITERIA FOR DECISIONS

b) Criteria for contacting seniors

PRHO ISSUES	PATIENT ISSUES	SYSTEM ISSUES
'If I have to think twice - I do it' 'Cautious about anything I haven't experienced or not happy dealing with', 'not seen problem before'. 'An individual thing you get little advice about' 'Down to how you feel about case, you understand what's going on, happy about what's going on. Happy to leave it with what you've done'. Concerned may have missed something.	State of patient Not stable / not settling / change Not responding as envisaged) progress of Not responding to treatment) patient Results come back - PRHO not sure of action in relation to them.	Contact seniors about unwell patient, patient whose condition has changed Something wrong When negligent not to call
+	(Clinical features suggest underlying pathology and cause of fall)	Let them know what going on and then they can decide whether they need to come.
HAPPY/NOT HAPPY, WORRIED/NOT WORRIED GUT FEELING - re - to make judgement, that you're not happy, out of your depth, about competence	Severity and background in relation to patient. Unusual for patient, decreased consciousness, shortness of breath	Middle of night - can anything be gained from senior? Will be interrupting their sleep For what reason?
(may link with section on tacit knowledge)		(this links with what the senior brings to these situations, if trivial don't phone, if nothing can be done until the morning - don't phone).

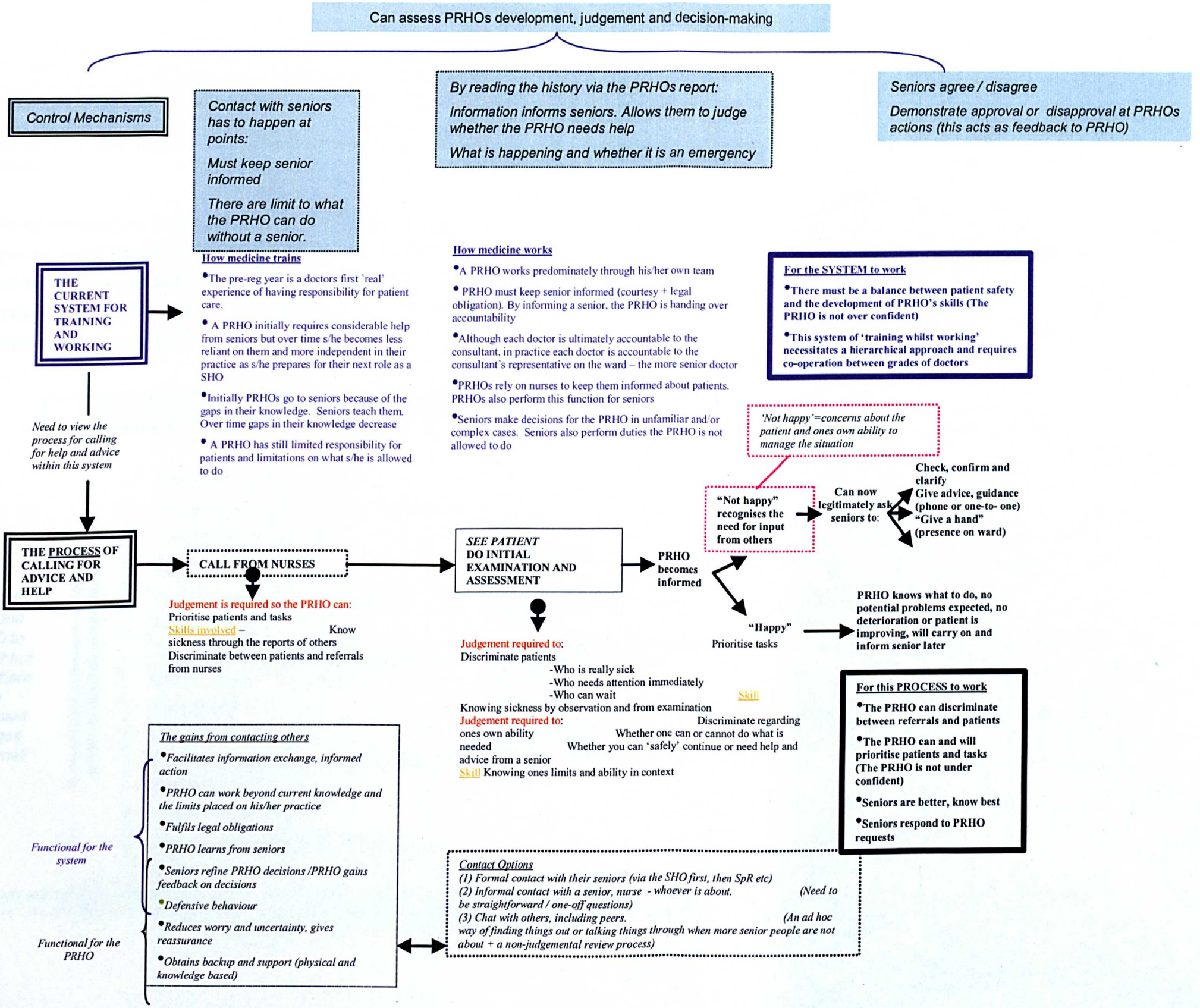
N.B. What may come out of this is how there are very stable facts and rules that govern this process but there are also individual variables that influence people. For example, how much people worry, are concerned etc will influence and perhaps over-ride other things. Making this process very variable.

Along with this analysis I also kept a diary which captured my ideas whilst working on the data. The following extract was taken from an entry on 29th September 2002 when I had finished sorting (following the same system as detailed above) F2, F3, F4 and F7 but had not done the above F9 analysis.

*'These (*referring to the data sorting process and the production of diagrams) *have been really interesting and useful but I think I am missing something. I think within each diagram there are probably rules, systems, mechanisms or some such thing and I need to be able to get at these – maybe there are assumptions underpinning it all. Can't see this clearly yet so just continuing until I have a brain wave.'*

I mapped all of the free nodes to gain an understanding of 'how things worked' such as the systems, structures, procedures and rules, and then once these were identified, went back and challenged these and / or looked for the assumptions underpinning them. This gave me an opportunity to look at the data from several different stances but also reduced, for the time being, the complexity of what I was doing.

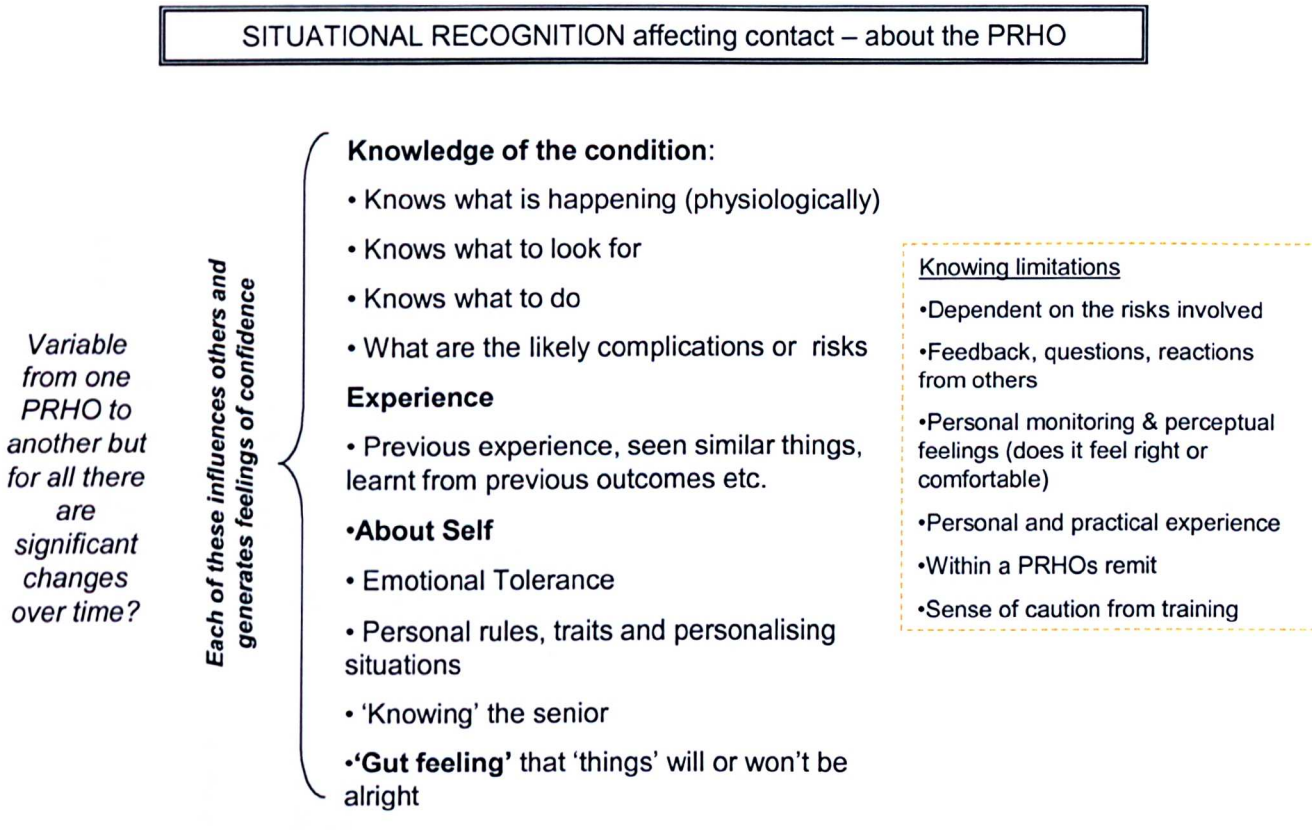
After the 'node' diagrams had been generated, each diagram was then considered in relation to other free node diagrams to produce all encompassing diagrams, categories and relationships between categories. There were several re-organisations and sorting of data within each of these processes. The following diagram captures my conceptualisation of the process of contacting a senior and also thinking about it as an important, functional process.



My appreciation of the functionality of the system is captured in another diary entry several months later:

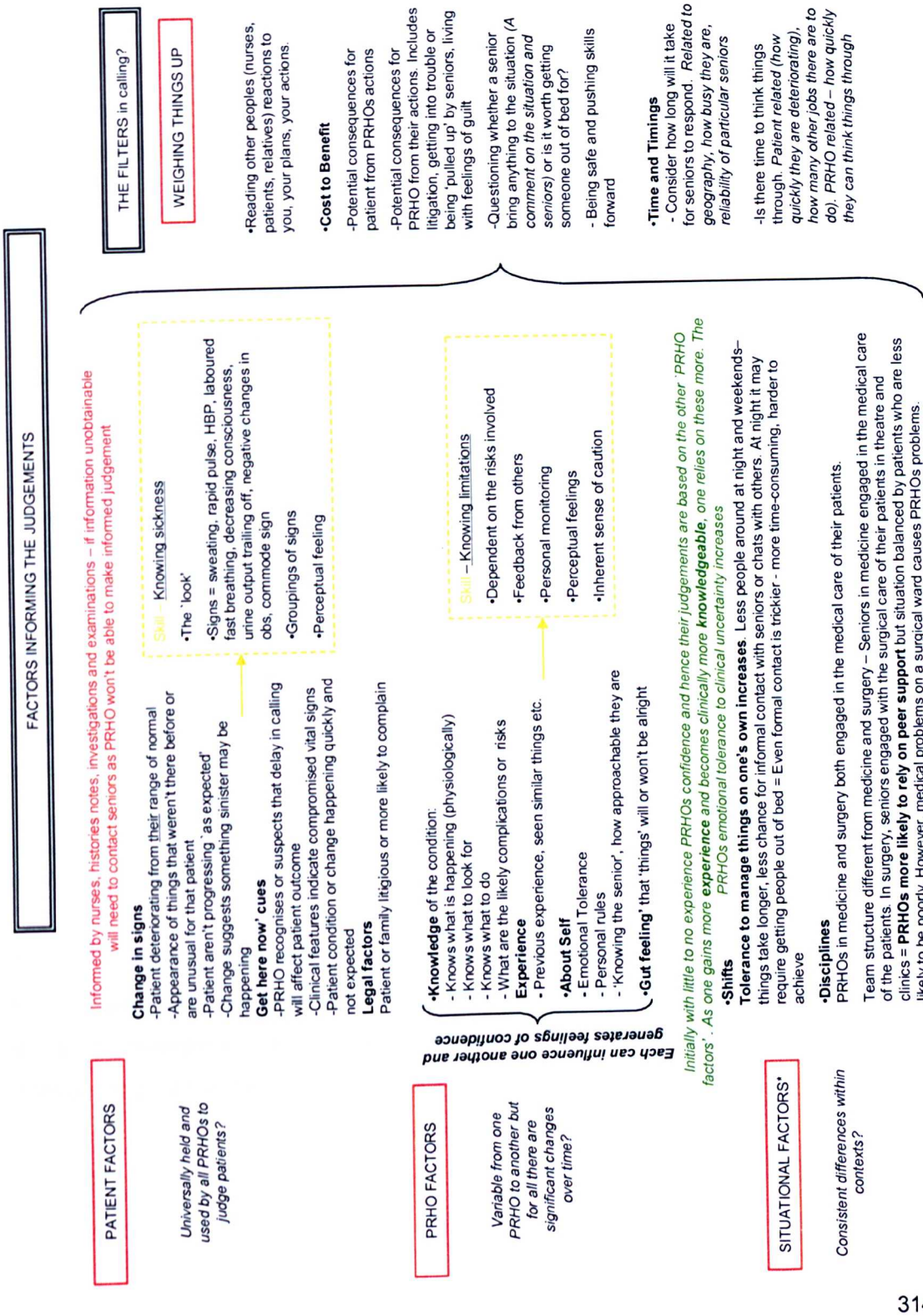
12th January '03 I had a meeting with Kathryn and Roger on the 6th to discuss project….. When I was describing the data I was saying, with enthusiasm, how functional it all was – the structure I was uncovering with the analysis….. Kathryn asked me why it was so surprising. I think because my own training was so 'incomplete' – I qualified and never saw another practitioner again. And probably because everyone went on about how terrible medical education is and actually, although not perfect, it has managed to combine learning and service in a safe way. Each layer (grade) *of doctor in training, right up to the SpR, has his/her worked checked by a senior at some point.'*

Along with understanding the structure of PRHO training and the processes involved in gaining senior assistance, the node 'criteria for contacting a senior' also contained data where the PRHOs identified factors that informed their judgement about himself and patient. The data for the following diagram is not just drawn from this one free node but represents many nodes from re-sorting process.



*Initially with **little to no experience** PRHOs confidence and hence their judgements are based on the other 'PRHO factors'. As one gains more **experience** and becomes clinically more **knowledgeable**, one relies on these more. The PRHOs emotional tolerance to clinical uncertainty increases*

The re-sorting allowed me to map out the factors that were perceived as influencing behaviour: features about the patient, the patient's condition and also the situation/ environment. Once these diagrams were constructed they were put together.



The 'mediating factors' are partially captured on the right-hand side of the previous diagram.

All the previous diagrams allowed me to map the systems, processes, procedures and alluded to the knowledge needed to function within these. The move to the conceptual model is more difficult to illustrate and to explain but pivotal within this was challenging the functionality of the system and process and the apparent assumptions that underpinned them

The observations allowed me to understand the context in which PRHOs worked and trained. The following are extracts from my notes of these sessions:

'Thoughts = pharmacist important – needed. Other PAMs seen to work in isolation with minimum contact. (Saw on the ward speech therapist, OT, physio, dietician). There is an engagement with the pharmacist but it still isn't social. Doctors and nurse are strong social groups. They interact with one another and everyone else seems like a visitor. The nurses and doctors are different in the way that they interact with one another, what they talk about. Nurses are social, are very 'female' in their interactions. Doctors were very focused, very 'male'. Communication about information, bantering, ribbing. Nurses talked about people, including other staff. Doctors talked about conditions of patients, drugs, things to do and snide comments about other doctors.'

'Mornings events have been really good especially seeing in action the emergency situation. It is as the HOs in the interviews have described it but there is something quite 'magical' about seeing it come alive (poor choice of words I know but...). It did come alive for me. What struck me was the speed at which it all happened, people got there. It was so fast. The other thing of note was understanding what the SpR was about. It was 'big brother' behaviour, 'pulling legs', joshing....'

'She explains that you can have an SHO who is 6 months in front of you or you can have a senior reg who could be 8 years ahead – support is therefore variable! HO explains that they tend to rely on medical registrar.'

The presentations in Phase Three were an attempt at engage the PRHOs with my findings and to see whether there was a collective recognition of my findings. The following are examples of the slides presented to them, and captures my shift away from describing the data to interpreting what it meant.

Slide 1

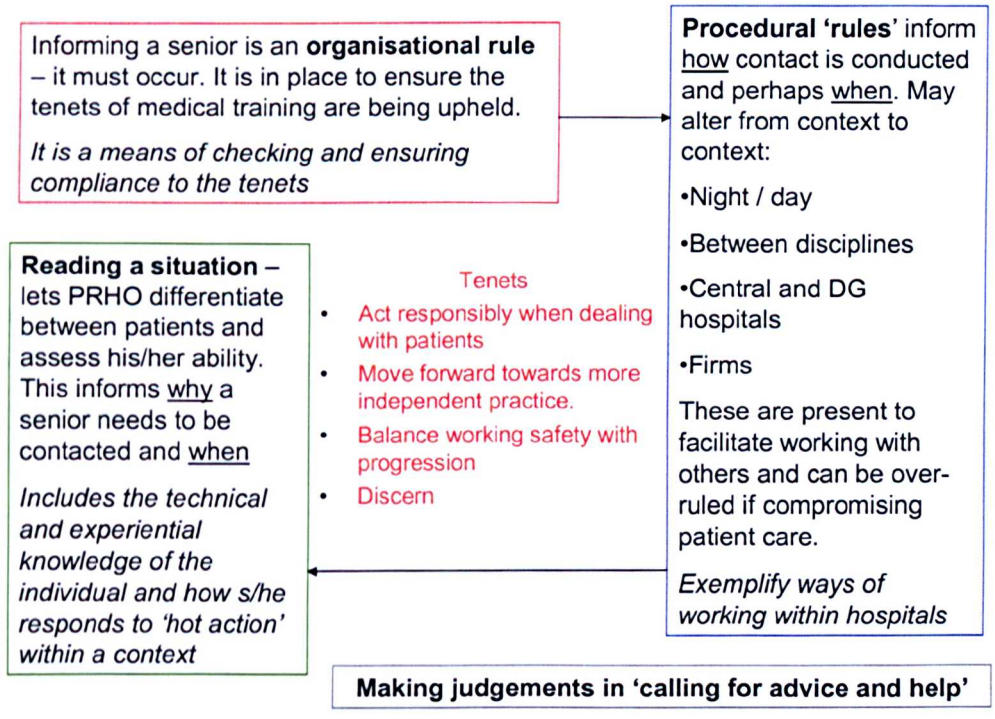
Beginning to explain judgements

- **Positional power of the seniors**
  Having 'more experience' equates to 'being better'.
  Involving a senior means the senior should be listened to
  Balance – Respecting seniors v. responsibility to patients

- **Being part of a 'Firm'**
  PRHO is reliant upon the co-operation of their Firm
  PRHO has a responsibility to their Firm and needs to think how his/her actions will affect the Firm.
  Balance – their own needs v. the needs of the Firm

- **Being known**
  Trust, acceptance etc develops within the Firm. But also awareness that their actions are being judged by their seniors and others
  Balance – Being seen to be doing the right thing v. getting the job done

Slide 2



N.B. at this time 'balance' and 'discernment' were also seen as tenets rather than mechanisms necessary for upholding the tenets.

Having mapped 1) the system; 2) the process of contacting a senior and; 3) the factors that the PRHOs used to judge whether they ought to or not contact the senior, the data was engaged with again. This time I was looking for examples of the system being dysfunctional, or the PRHOs not upholding what I had identified as rules. This analysis led me to identify the factors that had to be present for the system to work but also reasons why systems and rules were not always upheld or factors present. This included: when recognising the need a PRHO will contact; a senior member of staff will come if called; the senior brings more knowledge to a system; a PRHO has the right level of confidence. It also allowed me to differentiate between rules and conventions. One of the most important insights from this particular analysis was the significance of consequences which obviously mediating the PRHO's actions. This analysis is described in the text (Chapter Six, section 6.2).

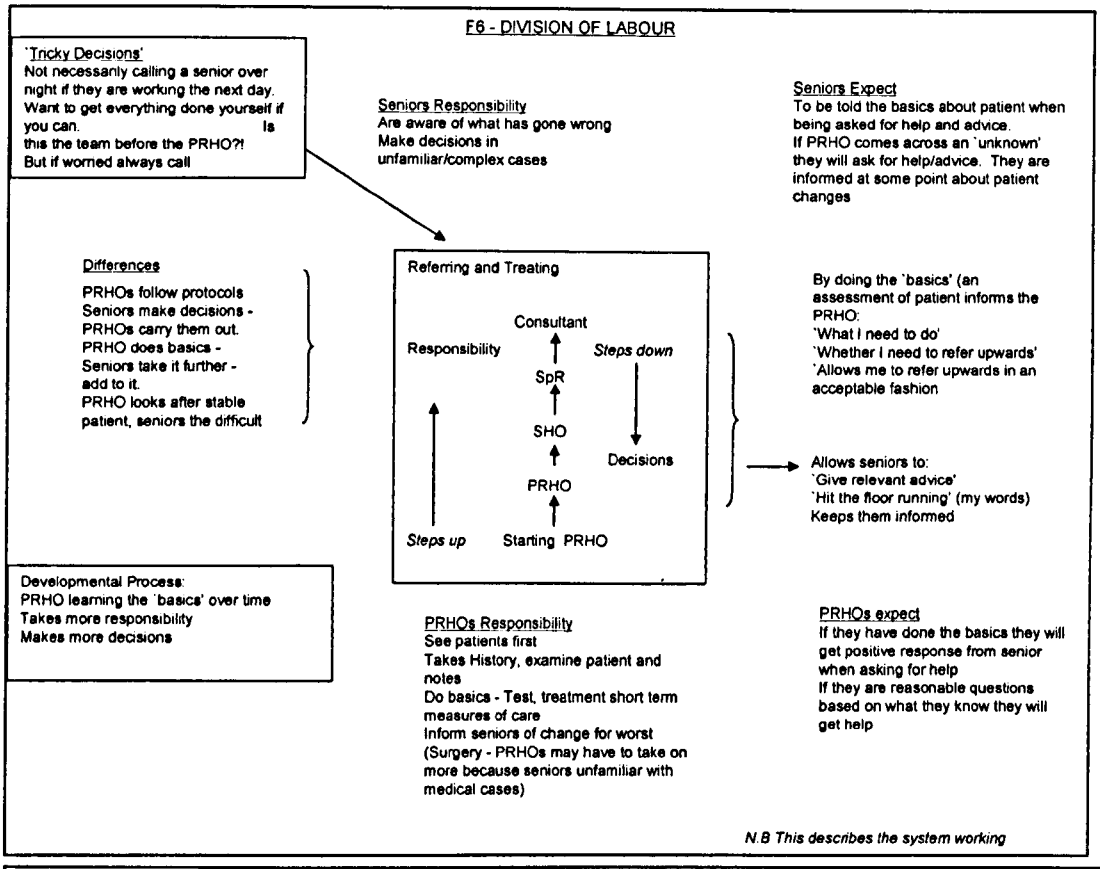
What was perceived important from the analysis was: the tenets that the PRHO needed to uphold in the pre-registration year; the consequences to the patient, team or himself from contacting / not contacting a senior, how that was mediated by the severity and chance of consequences and the knowledge needed to make these judgements. Also needing to be taken into consideration were those factors which might make contact more desirable but in themselves would not instigate contact. These elements were thought about and a diagram generated to capture how I perceived these elements interacted. Once diagrams were produced they were challenged against the data.

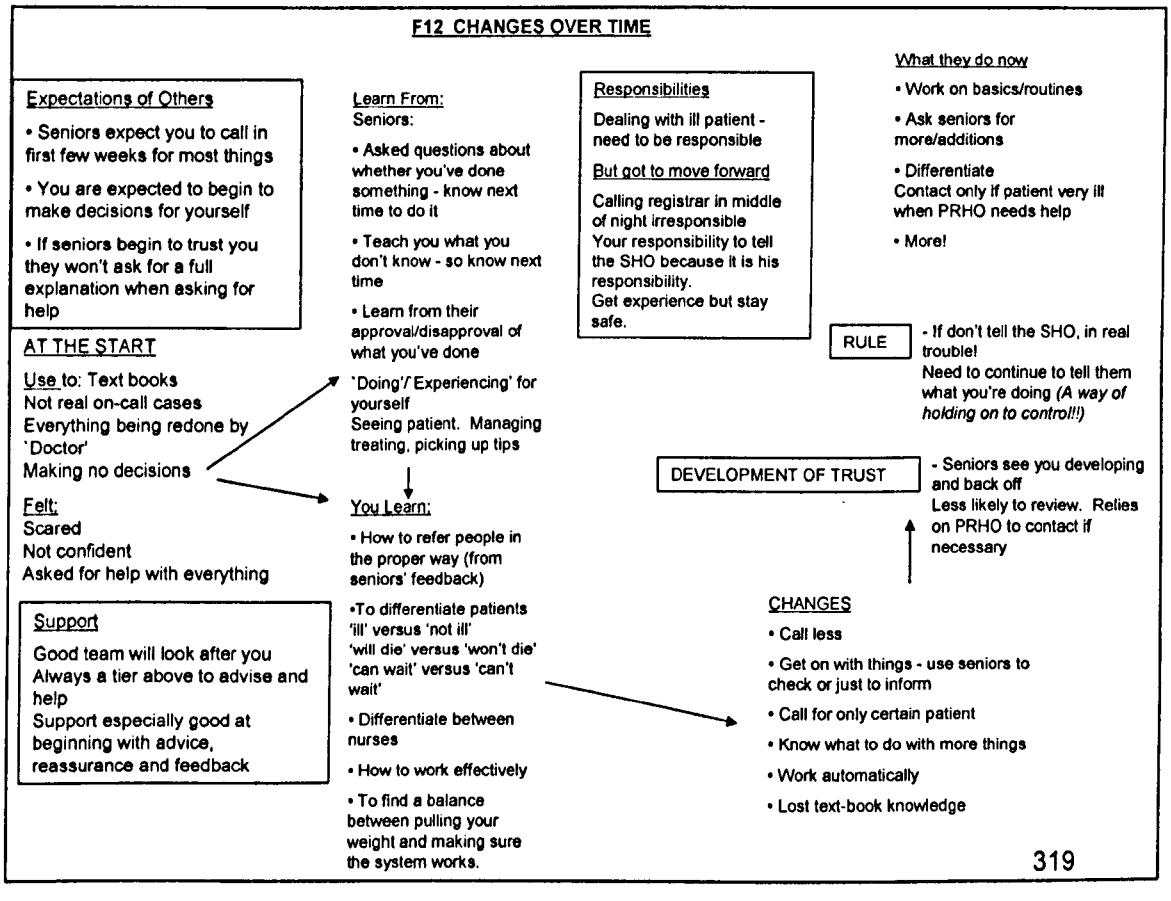
The following diagram is an early conceptual drawing showing the relationships between factors. This diagram was discarded because it inaccurately depicted the relationship between the data on the left and right side of the fulcrum, although some ideas were kept.

Diagram representing how a PRHO may read a situation and judge when to contact a senior

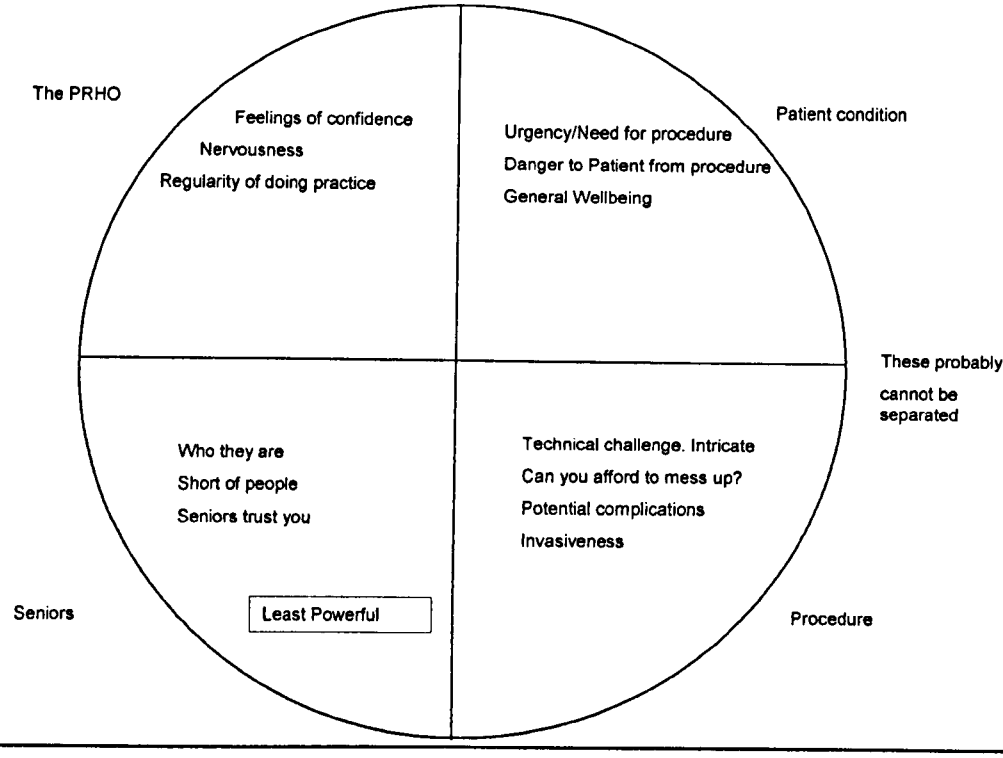
The final conceptualisation of the important elements can be found in Chapter Six, Figure 10.

Diagrams generated from Phase Two Free nodes





F15 - FACTORS THAT INFLUENCE CALLING FOR HELP



F22 - KNOWING SICKNESS

Reported by nurses or seen by self

If they are sick

SIGNS
- (Swaating, pulse, BP, colour, breathing laboured and fast)
- (Pale, laboured, fast. Tachycardia)
- (Unconscious)
- (Urine output trails off)
- (Commode Sign)
- (Obs.

SYMPTOMS
- Change -' Been then' -' are now'
- rapid/sudden deterioration
- Progress over time

Put knowledge and what you see together. Group things together and make associations

LOOK
- - Look of panic "I'm going to die"
- Looks awful.

"FEELINGS"
- (Quality/qualitative thing)
- (get a feeling)
- (gut feeling (about how ill they are)
- Get an eye (for knowing who's sick)
- (general feeling)
- (walk into a room (can differentiate)
- (know they don't look right but don't know what's going on)
- (Sense something is wrong)

Hear the story
Get a call from nurses
Know if you have to see Patient immediately
Patient can wait
See patient. Need to work out
If you are competent to manage

Genuine case versus "not right in the head"
Crying, weeping
Complaining of pain,
haven't got tachycardia,
inconsistent under examination, Age 30 with thick folder

This is important because it tells me something about the criteria they are using to judge and the processes they employ

Don't see poorly patient in Medical School
Know normal/abnormal values

Gain from experience
Learn from Patients you see
Ones that die
Having responsibility

Learn to know what information to get from Patient & Nurses.
What information other people need

F23 – WORKING AS A TEAM

TEAM AT ITS BEST

Members missing – others compensate
Registrar for missing SHO
Consultant for missing Registrar
Can seek advice from everyone.

Nurses inform PRHOs about things going wrong
PRHO tries to manage – if in doubt will bleep senior.
Seniors help PRHOs out
Able to challenge seniors

FUNCTIONING TEAM

Nurses inform PRHO
PRHO to assess and examine patient
- trusted to do so

PRHOs tell seniors what they have found
Should examine before ringing
Listen to seniors and what they have to say – have more experience – helpful

In recruiting people, select people who are known, not necessarily the best.

TEACHING

Seniors want to pass on skills to save them from having to do it and show off their skills

REALITY OF THE TEAM

Not about how you get on with people (*contradicts others*)
But who knows the stuff and who is going to back you up or who isn't.

SHIT GOES DOWN – DECISIONS GO UP

Team members talk (and moan) about each other (SpR moaning about an SHO who calls all the time, making them work harder)

CREATING A BALANCE

PRHO dependent on nurses keeping you informed because you can't see everybody.

Nurses help/direct you
Want to have the job done for Registrar arriving
PRHO expected to make decisions (pull their weight)
PRHO will not call at night if it can wait as seniors will need to get up
But will call if concerned enough about patient (*this must be variable depending on PRHO*)

Go up through own team. If team not there or unavailable may need to take it further.
If team busy have to think more about what to do or if it can wait.

PRHO can dump up and dump down tasks/work.
Seniors teach those who show interest

IF YOU CAN'T REFER UPWARDS

People won't come because they don't see it as their responsibility, don't know about the condition (relates to why the PRHO refers on and upwards).

PRHO can't abdicate responsibility unless someone else takes it on – PRHO can become stressed.
Who is responsible for some patients?
Patient unfit for surgery due to medical problem.
Anaesthetist, surgeon or medic who needs to look after the medical condition – whilst patient still registered with surgeon.

PRHO trying to refer outside of team – to radiographer etc to fulfil the duty of team – some seniors not willing to take requests from PRHOs. (And short staff seeing patient never seen before.
Nurses wanting the PRHO to do things to help them – like prescribe sedatives, etc.
DEFECTIVE AS A TEAM MEMBER
Nurses – making inappropriate demands on PRHOs.
(Is this about decisions only going upwards and not other way down)
PRHO not coming when nurses call
PRHO - being under confident, call all time
- being overconfident – not seeking help
-

Seniors – from experience PRHOs, don't always trust judgement
Can tell them what you are going to do rather than ask their opinion.
Don't come when called) skip them but risky
Don't do what you ask)
Team not available or don't know what to do means going out of the team for help.
(NB getting senior involved means they have to take responsibility – sometimes reluctant to do so – PRHO cannot abdicate responsibility apart from)
Medical problems on a surgical ward
Consultant won't acknowledge patient as his responsibility / inappropriate referral by GP - GP Responsibility/inappropriate referral by GP – GP wanting to abdicate responsibility: services more distant to patient.

Appendix K

Letter in response to ethics committee concerns

Professor PA Heasman
Chairman
Local Ethics Committee
Northumberland and Tyne & Wear Health Authority
Local Research Ethics Committee
Newcastle and North Tyneside
Newcastle General Hospital
Westgate Road
Newcastle
NE4 6BE

14th February 2003

Dear Professor Heasman

Perceptions and situational understanding of risk by pre-registration house officers (phase III) – Ref. 2003/02

Thank you for the summary report from the Ethics Committee meeting on the 14th January. I thought it may be useful before addressing each of the comments, to reiterate the philosophical stance in which this study is based as it is relevant to some of the questions raised by the Committee.

This is an interpretivist study that takes a constructionist position to the perception of risk. From this theoretical and epistemological stance, methodological rigour is assessed by the researcher making explicit the decision making processes undertaken in the research design and on a process of reflexivity where the researcher undergoes reflective analysis to examine how her own perspective has influenced the research and the conclusions drawn. The reflective analysis also includes how other 'factors' may have influenced the research process. Phase three of the study contains important elements for ensuring methodological rigour within this paradigm. From the comments made by the Committee I feel that I may not have made some decisions as explicit as they were in other documents. I hope that the following allays any concerns.

i. To note that there will be patients present during the observation period in this study and to seek justification for not requesting their consent as they are 'involved' in the research

The focus for the observations is on the systems, procedures and rules PRHOs follow when calling for advice and help. These have been identified from the interview data but need to be challenged within the 'lived clinical experience'. The PRHOs will not be observed whilst treating or examining patients but I had intended, if the PRHO does call for help and advice from seniors, to discuss with them the reasons they have asked for help in that instance. I see how this may be construed as involving patient information

however I stress that patient's personal details will not be recorded, only why the PRHO felt they needed help and what help they wanted. Whilst I had not intended consenting patients I had intended to, if asked by patients what I was doing, to explain to them that I was observing the doctors and that they were not the focus of my observations.

ii. To know whether you consider that your presence as an observer might actually affect the doctors' performance on the ward
Yes the implications of this decision have been considered. When I wrote on the Ethical Approval form that the observations would not interfere with patient care, I was not suggesting that my presence would have no effect, only that I would take care not to interfere with the PRHO executing their duties or caring for their patients and my needs as a researcher would be second to the patient's needs. I would expect that the PRHOs will conduct themselves in a way that exemplifies for them appropriate and correct behaviour or justify when their behaviour does not follow these rules.

iii. To seek further information regarding what extra data will be gathered by the shadowing/observing part of the study when compared to the interviews carried out in the previous phases
The interviews in phases 1 have allowed me to construct a view of PRHOs' perception of risk. The interviews from phase 2 have allowed me to develop a model of the systems, procedures and rules, both formal and informal, espoused by the PRHOs which reflect their situational understanding for asking for advice and help. (Asking for advice and help was identified in phase 1 as a situation where PRHOs recognised there was 'a risk' to the patient). The observations are part of the reflexivity process to assess whether the emerging models, developed from the interview data, are robust within the world in which the PRHO works. The observations will help the reflexivity process by challenging the assumptions made in the analysis of the interview data.

iv. To seek confirmation of any strategy that might be involved in upholding confidentiality during the focus groups when risks associated with unsafe or potentially dangerous practice might be discussed
I think it is important to stress that the group meetings are not focus groups. I will present my model of risk perception and situational understanding to the PRHOs for them to challenge or agree with what I have concluded. It is this that we will discuss rather than the PRHOs' personal experiences although of course the PRHOs will being making their judgements in light of their experiences. This strategy has been employed as a means of 'member checking' and will also facilitate reflexivity. The sessions will be taped but these will be destroyed after notes have been made from them as the tapes are only to be used as an aide memoir. The aim of the session and the function of the tapes will be explained to the PRHOs at the beginning of the session.

v. To know whether the timing of the observation of the PRHOs during their rotation is considered to be crucial as their relative experience on the ward will be an important factor in the outcome of the study; and
Yes. The timing of the observation is crucial and was designed to take place at the end of the pre-registration year so that the PRHOs would be embedded within the cultural and practice norms. This is acknowledged within the study.

vi. To know whether you have considered that the confidence of the doctors may influence their willingness to volunteer and, because of this, the sample of two PRHOs might be biased.

I would expect that the PRHOs who volunteer to be observed will be confident in their ability and will demonstrate what they perceive to be 'appropriate behaviour' throughout the observation period. I would not however, from an interpretivist stance, see this in terms of bias as it would from a positivist perspective. There are of course implications to this decision but as the observations have been employed to facilitate and challenge the interview analysis and aid reflexivity (in the pursuit of methodological rigour) rather than a means of triangulation, it would be inappropriate to refer to these implications in terms of bias.

I hope the explanations within this letter have helped clarify any misunderstanding and to give the Committee the information it requires. I include with this letter confirmation from Gateshead Health Trust that they are happy for me to speak to their PRHOs. I shall let the Committee know when I have heard from the other Trusts involved with my study.

Yours sincerely

Jane Stewart
Lecturer in Medical Education

Appendix L

An account of the effect context had on contacting seniors

The difference between working day and night

The PRHOs described doing the same job whether it was day or night. The order in which seniors were approached was the same at night although the PRHO may not know their SHO or worked with them before. What was different from working during the day or at night was the PRHOs' threshold for asking for senior support and potentially the function this activity had 'out-of-hours'.

During the day more people were available to the PRHO and therefore it was easier to engage informally with seniors and for major concerns the PRHO could readily contact a team member. For minor concerns the PRHO knew that these could be left as contact with their senior would occur at some point or there were always people available on the ward to ask. Other PRHOs were also easily contactable. These informal mechanisms used during the day for support or review, were not possible at night because of the significant reduction in staff numbers at this time. At night the PRHO needed to actively seek another doctor or rely on experienced nurses.

> I mean I have on ward....., in ..... there's been medical doctors around and I've put up an X-ray and said 'Do you think the same as me on this?' You know, 'cos they've just been standing next to me. So I think it still goes on, but on nights it's just you and your SHO and quite often the SHO's not in the same part of the hospital, and you're unlikely to run into another doctor. But then the nurses are around and quite often – I mean they've had a lot more experience than us, and quite often they'll be able to help you and say This is what usually happens. And you go Right, okay. That's what I'll do then. (A3:251-60)

Because of limited people doing busy jobs the PRHO needed to consider what actually required contact and what could wait. At night it was inevitably more difficult to get in touch with a senior and ultimately the process of contact took longer. As a consequence of these challenges, the PRHOs were more likely to deal with situations on their own at night and try to manage.

> I mean although they go to bed, so you don't want to wake them up at night because you're on nights, so quite frankly you know, you should be up and you should be trying to deal with things. (B10:322-24)

Ultimately however if it were necessary, the PRHOs said that they would contact the senior. 'Necessary' equating to whether it was essential for the welfare of that patient.

Arguably whilst nights were predominantly concerned with providing a service, through the day, with easy access to advice, support and help, the PRHO could engage seniors in discussions which helped the PRHO develop their understanding, confirm, clarify and test their decisions. At night with less people about the work-load was greater and consequently less time for discussion and meeting up with seniors. Engagement with a senior was more likely to be confined to the functionality of the job.

> It's the kind of person (*patient*) that if the Registrar's there during the day you might say 'I'll pop my head in the door and say hello to them' but you're not worried about them and you know – you feel you know exactly – people who come in with angina, they get some GTN in the ambulance, by the time they've got there the pain's gone away, their ECG looks alright and you think 'Well they're fine'. So unless they got another chest pain in the middle of the night again there's no point in having them seen because nothing's going to be done for them urgently through the night, so there's no point in getting anybody to see them.. (D19:215-24)

The different ways of working in Medicine and Surgery

The PRHOs described differences between the ways medicine and surgery conducted its 'clinical' practice which affected contact with seniors. In surgery, immediate seniors were in theatre or in clinics during the day and at night went to bed. Immediate seniors in hospital medicine predominantly worked on the ward doing comparable shift systems to the PRHO. This meant that asking for informal and formal help and advice from seniors was quicker and easier in medicine than in surgery.

The nature of patient complaints was also reported as different between the two specialties; seniors may be more readily available to help in medicine but patients were generally sicker.

> I think in Medicine we had more cases, you know, where people tended to be less well, if that makes sense. I mean the population we see sort of in this job are generally a bit healthier 'cos by the nature they're fit enough for surgery, they're just a younger, slightly fitter population. In Medicine, I think on an average on-call you would see sort of twenty people who were pretty unwell. Em, but you tended to get an awful lot more support from the Seniors who were around a lot more, so it was less – even if you didn't you know formally go and sort of call the Registrar, the SHO would be floating round the ward and you would be able to stop them and ask them about something you were worried about. (A4:264-75)

Although surgery patients were often healthier or at least well enough for surgery, a surgery patient with a medical problem presented significant challenges for a PRHO.

> In Surgery it's a bit more difficult because they're in theatre all the time and you feel like you're on your own. You really feel like you're on your own. In Surgery I thought we were unappreciated and it was very difficult to ask for help, unless it was a surgical problem they wouldn't deal with it. They didn't deal with any Medical problems, they didn't do things like shortness of breath, nothing, chest pains, nothing, they couldn't deal with anything Medical. (D16:306-10)

The challenge for PRHOs in surgery may revolve around the nature of the work being different within these two disciplines but the duties of the PRHO actually being the same. That is to say, in medicine the PRHO performed a job that had parallels with his senior role. In surgery this was not true; in the interviews PRHOs referred to himself as being the medical person in surgery. When a PRHO asked for senior input in medicine the senior brought to the situation more information and expertise but in surgery the senior, although skilled in the practice of surgery, was perceived as having only the same level of expertise in medicine as the PRHO.

As a consequence, getting senior support in surgery was potentially much more complex for the PRHO than in medicine because seniors were in a different locale from the PRHO both during the day and at night. This made access to seniors more challenging. When contact was achieved the surgical seniors may not be able to help if the patient required medical care and may explain why some PRHOs described feeling more vulnerable and less supported in surgery than in medicine.

Differences between seniors and the others with whom they worked

PRHOs described differences between seniors in terms of their experience and skill, their character, willingness to get up at night, wish to teach the PRHOs and their support for the PRHO. Most had had positive experiences of seniors.

> It seems an awful thing to say but it also depends who's on call with you – who your Senior is. Em, if you know it's a Senior who you'll either get on with, or you know is quite good, quite efficient, gets things done straight away, then you would have no hesitation in calling them out, you'd think 'That's fair enough'. If it was someone you either didn't like, which doesn't really happen really, or if it was someone who you knew wouldn't make a decision, wouldn't just – would just dither and dather about it – you'd probably just try and sort it out yourself, or you'd have a greater threshold for calling them, 'cos you knew you could probably make things worse by calling them. (B11:458-68)

The seniors also had idiosyncratic ways of working that the PRHOs got to know and needed to take into account in their own actions.

> Em, did he see the patient? Normally A does, and he probably would have done that time. I gained the history, after I've done this – yes A always has a chat with patients. Well, I say always – say eight times out of ten. Some of the minor things don't really need to, but something like this then he would do. (A5:92-6)

Differences were also described between nurses in regard to their experience and skill, their character and the demands they placed upon the PRHO. As with seniors the PRHOs had developed strategies for managing these situations.

PRHOs recognised differences between themselves and other PRHOs. Again this related to differences in abilities and skills, in experience, dealing with uncertainty and ability to cope with adversity and the job. PRHOs described differences between PRHOs in terms of their cautiousness to situation and those that demonstrated bravado.

Differences between hospitals

PRHOs described differences between hospitals and how this affected contacting a senior. These suggested differences in the layout of hospitals which affected how easily it was to obtain senior assistance in hospitals. For example being in a hospital that covered a large geographical area where the PRHO may be on a ward that is a significant distance from their senior. The systems of working within the hospital also influenced who was available for the PRHO to contact.

> The wards usually the Registrar comes – it's the SHOs – that's because we're on call so the SHO remains in the Acute Admissions so they haven't to be disturbed. (B8:236-8)

Employment problems within hospitals inevitably had an effect on who was available within the team for the PRHO to contact.

One PRHO described perceived differences between central and district general hospitals. These related to central hospitals having lots of doctors available. Although they had not experienced a district general hospital, friends had described it as very busy with lots more to do. This PRHO also felt that in central hospitals you could be more cautious than in a general hospital where there would be more pressure to get on with things.

Other differences

Pre-registration house officers who had trained in other countries described differences in training and practice between their countries and Britain suggesting important cultural differences. These focused predominantly on the variability in responsibility of comparable grades across different countries as well as the litigious nature of the culture.

Appendix M

Judgements in action

Drawn from F11- Borderline cases, F20 – Should have called earlier, F21- Called too early, F5 - Outcomes, F1 – examples and F15 calling for practical procedures

Throughout the interviews the PRHOs described examples from their practice which they used to illustrate what they would do and had done in their work.

For those patients who clearly needed more than the PRHO could bring to a situation or were out of the PRHO's remit, the PRHO would get input from a senior. But what markers informed judgements for those cases that were less obvious? Comments by the PRHOs suggested that in these cases the PRHO may recognise and know that they can manage a case but was not fully comfortable or 'happy' to do so. It also included cases where there was incomplete resolution of the patient's symptoms or the changes they were anticipating did not occur. Patients whose investigations were just within a range of acceptable also made it difficult for the PRHOs to judge what to do in these situations.

Borderline cases left the PRHO knowing that the patient was not in any immediate danger and unsure as to whether it was worth contacting their senior or not. For some this was not an issue as if there was any doubt, and for their own piece of mind, the PRHO would ring to confirm although this was more difficult to achieve at night. For those who described border-line cases these were where the PRHO was moving away from the obvious and towards subtle signs that required more interpretation and judgement than the PRHO had experience to make.

> And I think – so I guess I should have called for help more aggressively and earlier in that lady. I don't know whether it did actually affect her outcome or not. I mean, everyone – because I got very upset about it – and I have to say everyone was very nice and said 'Well I don't think there was anything else you could have done' when they looked through what I had done, but even so I probably should have been more aggressive about asking for help, and earlier. But I didn't have the experience to say – I mean I did go and see her, I didn't

> ignore her. But if I'd known – nowadays I'd have just dropped everything and gone to see her, 'cos I would have looked at her and known she was a lot sicker. (B10:347-80)

Being unsure of whether their actions affected the outcome or not was a common feature of these stories.

> There's been 'once' that I can think of, in my last job. It was a patient who went into urinary retention, couldn't pass water, and so, one of the nurses on the ward – it was in the middle of the night, about half three, four o'clock in the morning – and they tried to pass a catheter into him and couldn't get one in, so they bleeped me to come and put the catheter in and I had to try and try and try, and instead of trying so many times I should have called for help and it ended up with me causing like trauma trying and starting the patient bleeding. Which was, to be fair, probably going to happen with the Senior help anyhow, but I don't think I should have gone as far as I did trying before calling help. In the end it ended up with me dragging the Reg. out of bed at four in the morning. So I – whether I'd called for help half an hour earlier or not, it didn't actually make a difference what was going to happen to the patient, it's just really I should have called for help earlier. (J So why do you think you maybe didn't?) I think a lot of it has to do with the pressure of getting a senior out of bed in the middle of the night, because I didn't have an SHO on because they were on protected sleep with the job I was in. And so the only person above me was my Reg. and they were in bed for the night. And obviously they have to work the next day and so getting them out of bed was quite a big thing. It's different to getting them out of bed, like phoning them up and saying 'I've got a problem', quick phone call 'What do I do?' to actually a physical problem, like I'm saying 'Can you drag yourself across the hospital, out of bed, get ready and come and sort this out', so that's why I tried, 'cos it was like four in the morning and I thought 'Oh this is ridiculous, I can't – without having a couple of goes first'. (B11:336-65)

The PRHOs' reluctance to contact the senior was based on the trivial nature of the request when the senior was likely to be asleep. The PRHO perceived that the cost to the senior appeared greater than the potential danger to the patient. The PRHO had

had experience and knew how to do it so it seemed pertinent to 'have-a-go'. Yet again the PRHO came away from the situation unsure of whether involving a senior would have made any difference.

The criteria that PRHOs used to judge whether they needed senior assistance required the PRHO to work to a point where they recognised that they needed further help. When the signs and symptoms that the PRHO used to inform their decisions were not there or were too subtle for the PRHO to read the PRHO may have been unable to make an appropriate judgement. The other difficulty with such cases was whether the PRHO learned from them as there was uncertainty about the outcome and whether acting sooner than they had would have affected outcome. The PRHOs described such subtly in the signs that learning the important lessons was difficult for them and they were left in doubt as to how they should act the 'next time'. This suggested that the nature of the work was so uncertain that it was impossible for anyone to say whether the variable the PRHO brought to the situation was likely to affect the outcome. If the senior did not saying anything they made judgements about it themselves. In these stories the PRHOs described their thinking at the time, what they did not pick up on, realise the significance of and how managing multiple tasks at one time which with hindsight may have contributed to missing these. Experience meant that the PRHOs were better and quicker at recognising and picking up on cues.

Another PRHO described a patient who was bleeding from a wound (nephrectomy) and beginning to look quite shocked, Because they were skilled at fluid balance (a necessary skill in surgery), they continued to fill the patients with fluids. It was only when the registrar came and 'looked a bit pale' that the PRHO realised that what they were doing was diluting them and the patient needed a transfusion. The PRHO explained why he had not phoned their senior.

> But you know, it was one of those things – and I think that was the night when there was an SHO on who was very very competent, a very senior SHO, very competent, but the kind of guy who – and who I have a lot of respect for but – he's not a man who – he would get pissed off if you ring, if you rung him, as opposed to other people who are much more approachable, you know. And he – if I – I think it would be basically because he'd been in the job for a while, been

> an SHO for a while, and he was just fed up of doing night shifts and things like this. And from his point of view further down the line it seems inconceivable how anyone could worry about issues that House Officers worry about. I think 'cos he just – one: he was quite a hard character, two: he'd been an SHO for a long time and therefore was very competent, and, you know, he wasn't afraid of leaving you to sink or swim. So I didn't ring him, 'cos I didn't want to. I just thought about it – I didn't have much else to do, I only had one patient, just one patient, so I just focused on him and thought about it. (D18:169-86)

The PRHO thought from his experience with fluid balance that he had the skill to manage. The option of calling the senior was not in this case the easier of the options and therefore he sat and worked out the solution himself logically.

The final story exemplified the situation where the PRHO felt the situation would go one way and therefore did not get anyone senior involved.

> When I was on nights a couple of weeks ago there was a lady who was in a side room – I think she was quite *ill* but the *nurses called me* and said 'Well this lady's screaming and shouting, will you come and give her something to sedate her?', and em then – in cases like that – because essentially what they were asking for was an anti-psychotic like Haloperidol or something, which I'm not very comfortable with em because I'm just scared of the side effects really. So I said 'Okay, hang on I'll come' and I took my time, as I do when I get called for something like that, 'cos I just hoped that she would settle. And then they called me again and I said 'Yea, yea I'm coming, I'm just sorting out something else', and they said 'Look you can hear this lady, she's screaming in the background, something is just not right', and then when I did get there, I got there about – I got onto the ward about ten seconds before they pulled the emergency alarm because she'd arrested. I was em – that was the one time – I mean once that happened obviously I called my Senior straight away and said 'This lady's arrested'. (D21:163-80)

The PRHO's decision to act in this way was based on previous encounters with nurses who had wanted him to sedate patients. He felt it was best to leave these patients to

settle down rather than administer drugs. This PRHO appeared to be applying a personal rule which in this instance failed.

Whilst 'should have called earlier' described the complexity of what a PRHO was trying to judge and the mistakes they made in missing cues or following inappropriate responses 'calling too early' was perhaps illustrative of the PRHO's newness to their job and the naivety they perceived themselves as having at this time. Not asking early enough was about having difficult decisions to make and making judgement calls that they got wrong.

What was obviously important to the PRHOs was being able to ask for help and advice from a senior.

> I would say it is important to realise that help is always there, you just have to ask. I mean nobody is going to blame you if you ask silly things. As House Officer you are allowed to ask silly things, but you will get blamed if you don't ask them and something goes wrong. I think that's one thing really important to realise. Because so many times we think 'Oh we shouldn't be bleeping them. We are just bleeping them for silly things, because they will think "Why is he calling me for everything?", or they will make some comment or it doesn't matter in the end. I would say that if you are not – finally what will happen is if something goes wrong then they will just come and catch you. They're not going to catch the Registrar or the Senior – they will say 'You have seen the patient, so you have to be responsible for what has been done or what has happened'. So I think that when it comes down to asking for help not to be shy, just ask. (B15:643-57)

Specific to practical procedures

The PRHOs described few practical procedures that were considered suitable for their grade to do. Seniors may have had priority over PRHOs in gaining experience of procedures to ensure that they had sufficient experience to teach juniors. Consequently PRHOs may have had limited exposure to practical procedures.

The PRHOs talked of needing some practical experience before conducting a procedure on one's own. Although there was talk of 'see one, do one teach one', the potential staging in developing competence in practical procedures as it was described by the PRHOs was more complex and appeared to include 'see one and observe', 'do under supervision', 'do with guidance' (perhaps over the phone) and 'do independently'. The move to independence appeared to relate to how the PRHO felt about undertaking the procedure. As with other activities 'being happy' was an expression used to signify confidence and perceived competence to undertake the task.

> I mean the first thing they ask you is whether you're happy to do it. If I say I'm not happy to do it they don't push you, they just say to you 'Come and watch'. If I say I'm happy to do it then usually they come and watch, they allow you to do it. Or if I say 'I want to learn, can you just take me through the steps?' or if I'm not very – I've done it once but I'm not very sure about it', then they will be with you and I can take it through the steps 'Do this first, do this ... everything', and if you are stuck at any stage they will put their gloves on and come and help. (B15:576-84)

In reality it was probably more difficult for the PRHO to work within his own feelings of adequacy when the job needed done.

> Sometimes it is, because at the end of the day I mean, I know officially you should get to see a lot, you should be supervised seeing a few until you feel competent and whoever's supervising you feels your competent at it. But in practice that can't happen. You – especially like when you're doing nights there'll be – the way this unit's set up – there'll be a House Officer and then either an SHO or a Registrar available on site, and it's not always practical that you know, you can ask your Registrar or your SHO to show you how to do a procedure. (B9:121-9)

For common, simple or straightforward procedures such as venflons and taking blood gases the PRHO gained lots of experience very quickly. Some were such straight forward procedures that they require limited exposure and or teaching to feel competent in doing them.

> And I suppose the – people say tradition is – see one, do one, teach one but em I mean for some things you just do them. I suppose it just depends what you're happy with. I mean often – say like an NG tube – the first time I did one I hadn't seen one but I had someone there just saying That's right, you know just – I'll ask someone to come and supervise me doing this (A2:245-50)

With less common procedures the PRHO may not get experience or there was too long a time in between exposures to develop a feeling of confidence about doing it.

> Em, I mean the things that I haven't really done before. I was actually supervised here as a student, tapping fluid off a chest and things like that – I suppose having not done that for a while I'd make sure that someone with me the first time I did that, just to make sure I was doing it right. I'd do it myself I think but I'd want supervision. (A2:263-8)

The PRHO's willingness to perform a practical procedure was not always linked with how many the PRHO had seen or done or how frequently the PRHO was doing them. Willingness to perform procedures was also related to specific procedures and where making mistakes had implications.

> A lot of the things it's a case of see one, do one, teach one and so if you've seen it done, you don't mind – so long as it's not too invasive, it's not too risky – you don't mind having a go. Em, and certainly if you've done it before under supervision and it was the middle of the night, it would be a case of – well obviously it's very dependent on what it is. I mean if it was – say a catheterisation, simple thing like that, seen lots, done lots before, so I thought 'Well, why not, have a few goes'. Whereas if it was giving some drug that was, I don't know, to do with some arrhythmia, some life-threatening thing, you wouldn't be very happy doing that initially on your own in case it did go wrong. You'd want your Senior there for the eventualities of it going wrong and things like that (B11:418-29).

The PRHOs described considering the technical challenge the procedure presented, how intricate it was, the potential complications and danger there was to the patient and whether the PRHO could afford to 'mess it up'. This was of course related to the patient's condition but also the invasiveness of the technique. The more invasive, dangerous etc, the more cautious the PRHO reported being and the 'less happy' they were to perform the task.

> It depends, yeah, how intricate the procedure is, and also – another factor is how much of a threat it is to the patient, 'cos some procedures are more invasive than other procedures. So the more invasive the procedure is the more cautious you're going to be about doing it. So something like a lumbar puncture or something you'd want at least two or three goes with being supervised before you'd do it yourself, on your own. Chest drains for example – a similar kind of thing. Whereas packing nose bleed – I'd be supervised once then I'd be happy doing it – cauterising noses, syringing ears ... (A5:485-93)

The general state of the patient also influenced the decision on whether to take on procedures that they were not fully confident in performing.

> Em obviously there is a variation with the patients between someone who is quite alert and able to co-operate because they're just having some feeding because they're Nil by Mouth, as opposed to someone who's unconscious, you can't ask them to swallow and things like that, so there would be a marked difference. But you know, I suppose it comes down to again the possible dangers of the procedure and things like that as to whether you'd be prepared to have a go on the less well patients.(J Right. Yes, yes.) With something like taps and things like that. (A2:278-86)

These decisions for practical procedures were similar to those in decision-making generally.

> If I mess it up there'll be lots of side effects and the patient will lose a great deal. Those are the kind of issues that – and you're making medical – in the same

way that you make a decision – you might try and do something – you make a decision on the same basis. (D18:324-8)

Factors about whether the patient needed the procedure urgently or needed done as a diagnostic aid, were also described as influencing whether the procedure was undertaken without input from a senior.

(Talking about chest drains) I mean they're very very rarely urgent, especially on the Medical wards, they're never urgent really. And it's – there's always time to get supervision there, I mean you still do it but it's always under supervision.(B11:561-4)

(Ascites tap) I mean later on I think they put a permanent tube in to drain off more to make them more comfortable, but that was the initial - because the Registrar didn't have time to come and put the tube in that day, she was saying you know, it would be useful to get this sent off so that at least we can start the ball rolling about finding out what's going on with this man. So, it wasn't giving him any symptomatic relief but it got the process going. (B9:248-54)

These data seemed to suggest that rather than 'see-one-do-one-teach-one', the reality is far more complex and should be 'consider-all-the-variables-and-decide-what-you-feel-comfortable-doing'. There was a multiplicity of factors that the PRHOs used to guide their decisions about taking on a practical procedures and the support they needed to do it. What was clear from the data was the importance the PRHO placed on how they felt about performing the task. Ultimately they saw it was them deciding whether, if given a choice by the senior, they were confident in their ability to perform the task adequately. The accounts showed that they were not the only decision-maker as seniors also had an input. One PRHO described constant monitoring from his team.

Procedures – I'm never allowed to do them on my own. They always want me to be supervised. I mean that is the ruling, that I will always be supervised as House Officer whatever I do. Even it it's taking off a small drain or doing removal of sutures. I think the GMC says that we should be supervised in those things. Er but sometimes when – I think when staff are less – sometimes some

> Registrars have asked me 'Are you happy to do it on your own, or do you want us to supervise?' So it depends on the procedure – if I'm confident about the procedure I say 'Yes, I can do it'. Although honestly speaking I've never been allowed to do anything on my own. They've always been there, even though I say 'Yes, I'll do it on my own', they'll quietly come into the room once I've started just to make sure that I'm doing all right. (B15:559-71)

Although this PRHO talked about the GMC ruling of having supervision from a senior no other PRHO described this level of monitoring or a way of working that did not require the PRHO to use their own judgement. This perhaps suggests that PRHOs were given the choice to undertake an activity by a senior but only if the senior felt that the PRHO had sufficient skill to make a wise decision.

From these data it seemed that PRHOs may have 'had a go' (little to no experience) if they were receiving guidance from a senior (what to look for and how to do it), the technique was in itself not considered to be hazardous, the PRHOs had it checked afterwards by a senior, it was considered a minor intervention that could not damage the patient in any real way (had no long term consequences), it was perceived as not complicated and the PRHO felt that they could manage. Patient safety and care was being balanced against the need to push their own development. Whether to take on a task required the PRHO to judge not only whether they perceived that they had adequate experience to undertake it independently, although this was an important consideration, it was also about weighing the costs to benefits of performing that procedure, with a particular level of skill within a particular set of circumstances. It appeared from the PRHOs' accounts that it was their own judgement about his ability that influenced what he would and would not do by himself and although feedback from others informed the judgement, ultimately the PRHO was expected to make the 'appropriate' decision. It is suggested that if the PRHO was unable to make this judgement it would be made for them by the senior.

Appendix N

The proposed Foundation assessments

At the time of writing this thesis, the following are the proposed national assessments:

The mini CEX (Clinical Evaluation Exercise) This is a 15 minute assessment of a doctor/patient interaction to assess clinical skills, attitudes and behaviours. Six should be done each year using a different observer each time. CEX covers: history taking, physical examination skills, communication skills, clinical judgement, professionalism, organisation/efficiency and overall clinical care. The encounters selected for evaluation need to vary so that they cover the topic areas in the curriculum – airway, breathing, circulation, neurological, psychological/ behavioural and pain.

The mini PAT (Peer Assessment Tool). This gives the trainee (and his tutor) feedback from co-workers. Two of these are done per year. A range of eight co-workers, one of whom must be the trainee's supervising consultant, are asked to complete the form covering the principles of good medical practice.

The DOPS (Direct Observation of Procedural Skills). This requires the F1 doctor to perform six observed encounters. The trainee is expected to do at least 6 each year with different assessors and on different procedures. The data sheet allows both the assessor and tutee to write about how the assessment went and captures observed strengths as well as how things could be improved.

The CbD (Case-based Discussion). This is where the trainee presents a case record. Its' function is to assess the trainee's care where he has been responsible for that patient. It is judged in terms of the application and use of medical knowledge and clinical decision-making. The trainee submits two recent patient records where he has been part of the patient's care and the assessor chooses one of these for the assessment. The CbD needs to occur on six occasions in a year and covers medical record keeping, clinical assessment, investigation and referrals, treatment, follow-up and future planning, 'professionalism' and clinical judgement. Again the assessors and trainees can express, on the data sheet, comments about the assessment event.

The CEX and DOPS are to last 15-20 minutes and feedback to take no longer than 5 minutes. The CbD is to take no longer than 20 minutes including feedback. The mini PAT is said to take no longer than 10 minutes to fill in and feedback is sent to the trainee. Each assessment uses a data sheet that follows a similar pattern, using a shared ordinal scale:

1 or 2 - 'below expectations for F2 completion',
3 - 'borderline for F2 completion',
4 - 'meets expectations for F2 completion' and,
5 or 6 – 'above expectation for F2 completion'.

The outcomes for all of these assessments will be kept in a **Portfolio** and through this documentation the Foundation doctor's progress and success will be recorded and monitored. At the end of the year, a RITA (Record of In-Training Assessment) panel will judge whether he has demonstrated adequately the necessary competencies and is therefore eligible to progress.

The Northern Deanery's comprehensive but exacting approach to managing the Foundation doctors' education and training has some additional activities. These are viewed as helping pursue and promote 'life-long learning' and a 'learner centred approach', both principles espoused as underpinning the Foundation Programmes. The assessments and added activities are represented by the colour of form on which the data are collected:

1. Green form: the contract. A learning agreement signed by tutee and educational supervisor.
2. Yellow form: the educational review process. Includes a self-evaluation instrument, a summary of the self-evaluation and a Personal Learning Plan.
3. White forms: the evidence. To include a log of experience (main service experience, formal education activity) and the results of the assessments.
4. Pink form: reflective practice. Reflective accounts which demonstrate learning from experience.

5. Blue form: summarising evidence. Summary written by tutee and endorsed by education tutor and precises progress.
6. Orange forms: the record of annual assessment of progression. The summative assessment and recommendations of the RITA panel.

The current instruments are 'user-friendly'; short and undemanding in terms of writing and the time needed to complete them. The scale is, however, surprisingly simplistic and this challenges its ability to do what is required of it.

Firstly, the scale assumes assessors have a clear and shared knowledge of the standards for the end of F2 and these are conceptualised well enough to allow them to differentiate between what constitutes 'below', 'borderline', 'meets' and 'above' expectations. Secondly, the scale needs to capture progression, but its applicability is questionable when used with statements such as 'awareness of their own limitations' (mini PAT). Surely the F1 doctor needs to be as aware of his limitations as F2 doctors. It is the actual limitations that will be different from F1 to F2 doctors. Thirdly, during the first year the Foundation doctor could legitimately only gain a score of 1 or 2. One wonders how the F1 doctors will be able to sustain a positive outlook on their abilities and progression, when the marks show such a small numeral shift. It is also suspected that for the average doctor, a score of 1 or 2 is likely to be perceived as equating to failure.

Despite the introduction of multiple, clinically relevant assessments being introduced, the ordinal scale does not appear robust enough for its intended job, neither is there enough information to ensure adequate and shared conceptual understanding of it.

Although there are questions on the data-sheets which suggest that they are being audited, evaluations of the assessment procedures require immediate study to understand those issues that might detract from the assessment and their developmental goals. Studies need also to be done to see whether the assessments actually capture the ability of the Foundation doctor to practice.